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ABSTRACT

This paper summarizes the CHOICES project, an interactive computerized career information system developed to assist users in searching through the range of occupations which exist in Canada, and outlines possible future plans. Discussions of what the system is and why it is needed include a list of 14 benefits for clients of the system. Problems related to integrating CHOICES into the school context are discussed, and a 7-step plan for using it to enhance career counseling is proposed. A general description of how the system works is followed by a printout of a "conversation" which demonstrates the program and the kinds of information available. Information gained from a pilot study conducted to confirm the effectiveness of CHOICES is summarized, including emerging guidelines, general recommendations, secondary school recommendations, postsecondary recommendations, recommendations for implementation, and general conclusions. A discussion of the future of CHOICES looks at its future clientele, considers alternative modes of access to the system, and sets some goals. The paper concludes with four short scenarios to demonstrate what might be possible in the years ahead. (CHC)

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Province of British Columbia
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DISCUSSION PAPER 01/81

B.C. HAS A CHOICE

Annette Wright

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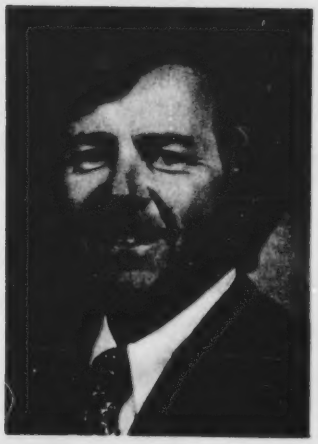
score along line and detach

The following is a discussion paper which has evolved from the work presently being conducted by JEM Research on behalf of the Ministry of Education. Its purpose is to obtain reaction to the ideas presented.

We encourage you to complete, detach and mail this form to the Planning Centre, Ministry of Education, Parliament Buildings, Victoria, B.C. V8V 1X4 (attention: Dr. A.E. Wright).

Comments: _____



In 1977 when "CHOICES" was first being considered for use in British Columbia, both the complexity of installing the system and its possibilities seemed enormous. Today, we have reached the point where planned installation over the next three years will assist 200,000 secondary school students to plan their careers.

But the story does not end there; eventually, post-secondary students and members of the workforce who need information on the changing world of employment may have the opportunity to plan second, third - even "retirement" - careers with the help of this unique counselling resource.

A variety of agencies and individuals have been involved in the planning of "CHOICES - B.C.", and will continue to monitor its effectiveness. Their hard work is appreciated and their anticipation for the success of the project is well founded.

R.J. Carter
Deputy Minister for Education

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INTRODUCTION

The complexity of the labour market and of the personal decision-making required in selecting from myriad career and training options, lends some urgency to the need for a comprehensive information bank, both for those entering employment for the first time and those considering a change of direction.

CHOICES is an interactive computerized career information system developed by the Canadian Employment and Immigration Commission (CEIC), to assist users in searching through the ever-increasing volume of information on the wide range of occupations which exists in Canada today.

The use of CHOICES in British Columbia was first considered in 1977 and discussed in a study conducted for the Ministry of Education in 1978. Implementation of the system was recommended but economic feasibility remained a problem. Less than a year later, however, less expensive technology, resulted in a recommendation for the introduction of CHOICES in a second study, completed in June 1980.

Over the course of the project, which has explored a number of avenues to implementation and included a pilot phase, a large amount of documentation has been produced - much of it highly technical. It is this documentation which forms part of the background for the information presented in these pages.

The purpose of this paper is to summarize the project to date and outline possible future plans. This will be done by describing the system in general terms (WHAT IS CHOICES?), presenting a rationale for the effort and expenditure required (WHY HAVE A SYSTEM?), accounting for CHOICES in the current school/college context (CAN INTEGRATION TAKE PLACE?), taking a walk through the system (HOW DOES IT WORK?), looking at the history of the program (WHERE DID IT COME FROM?), examining the recommendations on which installation is based (WHAT DID WE LEARN FROM THE PILOT?) and documenting possible timelines (WHEN WILL WE SEE THE RESULTS?). Finally, the paper speculates on what CHOICES will mean to British Columbians in the years ahead.

NOTE: This paper has been written for general readership only. Counsellors, students and other eventual users of the CHOICES system will be provided with specific user documentation.

WHAT IS CHOICES?

Essentially, CHOICES is a computerized bank of information related to careers, employment opportunities and training. Four features are particularly attractive to the user.

1. Information is obtained quickly and easily.
2. The system is comprehensive. It accounts for all levels of employment, characteristics of jobs, working conditions and prospects as well as an enormous range of career possibilities (in fact, those jobs which employ 95% of the Canadian labour force).
3. The information is current and kept updated.
4. The system allows exploration and comparison of related material; a user does not have to know what is available before deriving benefit from the information.

But CHOICES is not an oracle and its purpose is not necessarily to enable students to select a final career. The major objective of the system is to help clients to plan and examine various career possibilities in keeping with their

particular set of expectations, requirements and interests. It is hoped that CHOICES will develop a mind set towards thinking about careers in a practical, realistic and systematic manner, well before final training and/or employment decisions need to be made.

The two major categories of information to be contained in the system, concern occupations and institutions, allowing users to explore the training requirements for those occupations which interest them. But before this stage is reached, the system is able to select occupational routes which appear to match the personal characteristics of the user, that is, CHOICES comes as close as possible to suggesting career routes which may meet individual profiles, rather than attempting to mould individuals to particular career paths. In short, CHOICES meets four basic requirements of career counselling:

1. helping the individual to know and understand his/her abilities, interests and aspirations;
2. supplying the individual with information concerning occupational opportunities and requirements;
3. helping him/her to see the implications of situaltional and personal data for his/her career;
4. motivating and assisting individual students to address and undertake the matter of career planning and goals.

The following extract from the 'Counsellor's Manual',* describes the uniqueness of the system.

> *CHOICES provides a partial answer to the problem of relating self to the world of work. It provides access to a comprehensive, up-to-date and provincially localized data bank of career information at a speed and with a level of efficiency beyond human capacity. CHOICES makes it possible for clients experimentally to explore its extensive data files and to examine the ways in which their personal perceptions of their needs and desires regarding work influence the range of career opportunities available to them.
>
> Communication is directly with a computer, through a terminal, by means of a series of simple instructions which produce immediate responses from the computer. This allows clients to see instantaneously the results of choices and decisions made, and to compare these results with those of other choices. Furthermore, the comprehensiveness of the computer's data files assures client exposure to a broader range of possibilities than would otherwise be practicable. Because clients immediately see the results of each instruction they choose to send to the computer, they can change their minds and their exploration strategy at any point. This places clients in total control of the occupational decision-making process and closes the communications gaps between the facts and those who need to use them.

*CHOICES, COUNSELLOR'S MANUAL, EMPLOYMENT AND IMMIGRATION CANADA, ADVANCED DEVELOPMENT DIVISION, OCCUPATIONAL AND CAREER ANALYSIS AND DEVELOPMENT.

WHY HAVE A SYSTEM?

While the range of available occupations appears to be increasing, the means of anticipating the consequences of a career choice have tended to remain static.

1. School drop-out rates may reflect that many individuals do not have a well defined or realistic career goal to work towards.

2. The degree to which post-secondary students change programs or fail to complete training courses, indicates a discrepancy between expectations and reality.

3. Absenteeism and job dissatisfaction might well be indicators of lack of adequate assessment and planning, leading to reduced commitment to the job.

4. High unemployment may frighten people into quick decisions without thought to future conditions.

5. Many post-secondary students are still making career decisions on the basis of "soft" information - what they are familiar with in the community, the advice of family and friends - rather than objective analyses of their own capabilities and preferences, and opportunities available elsewhere.

In addition, the occupational decision process has been extended at both extremes. No-one should be expected to make a career decision at grade seven or eight. Yet students at this level should be developing an awareness of their interests and aptitudes in order to select subjects which have some bearing on their general preferences. Likewise, society's expectation that one is "locked-in" to an occupation for life, has been considerably reduced. As individuals grow and change, they are equally likely to change their original decision and to require assistance in selecting a very different occupation. Finally, the type and amount of career information available to students in various parts of the province has tended to vary considerably.

Given this situation, the job of the vocational counsellor has become extremely difficult and complex. In the past, the counsellor has traditionally relied on two types of information - personal knowledge of the client and a library of printed material, but to account for all the variables which will lead to occupational satisfaction for one student and not another, is not humanly possible. Indeed, the process is self-limiting in that it requires the client to select an objective before beginning the search for information. This happens largely because most career resource libraries are catalogued by occupational title and the student must select information on the basis of occupation.

The CHOICES system takes a totally different approach. Students generally know little about specific occupations, or may have completely distorted notions of what is involved, but they do know something about themselves. CHOICES helps students put this self-knowledge in a form which assists them to look at occupations more appropriately and often to consider other occupations which they had previously not known about or disregarded. This approach would be tedious and time consuming if conducted manually, but technology offers a feasible means of evaluating occupational alternatives on an individual basis. Thus, while vocational counselling has become more important than ever, the traditional mode of information on which it relies has become obsolete. CHOICES promises to overcome the information problem and at the same time, if used properly, to greatly improve the decision-making capabilities of students.

Benefits from the system should acrue to clients (whether students or those already in the work force), counsellors and the province as a whole. Because of planned phasing-in of CHOICES, these benefits will appear gradually over a number of years. Eventually, however, British Columbians may be able to realize certain expectations, among which are the following.

1. At every site where a terminal is installed, identical information for career exploration and planning for training will be available. This will offer equal opportunities for information, regardless of location.
2. Counsellors should be able to offer more complete coverage for career and post-secondary information while reducing the time they now spend on research and classification.
3. The information will be updated frequently.
4. The information will be easy to access and fun to use.
5. Because many students are attracted by computer technology, they will be anxious to try the system and get the most out of it.
6. As the system comes into wider use, the role of the counsellor will increase in importance. He or she will be needed to guide the student in the use of the system and to discuss, interpret and relate the information obtained on a one-to-one basis. Simultaneously, counselling departments will be offering more information, more reliable information and easier access, all of which will contribute to their efficiency and credibility.
7. The handling and cataloguing of large volumes of printed material will be reduced.

8. Clients will have quick access to information on training programs across Canada.

9. Each participating institution will have access to a communications network which can be used for other purposes.

10. Increased job-satisfaction for many people can be anticipated.

11. Students should be in a better position to evaluate the pros and cons of school leaving before graduation.

12. The system should provide the basis for more organized information on the training needs of the province and the occupational preferences of school leavers.

13. Students who utilize the system will be better prepared for occupational counselling later in life.

14. The system is "friendly", "approachable", and always available. Counsellors should be able to respond more effectively to a wide range of students with this resource at their disposal.

CAN INTEGRATION TAKE PLACE?

The concept of CHOICES is very different from anything that has been available to the counselling process before. Not only is the approach new, but it is based on newly available technology; and introducing technological innovations into an organizational setting has never been without problems. The question therefore arises - can CHOICES be successfully integrated into the school context?

Enough background work has preceded the initial implementation of the system, that there is a high degree of awareness concerning both the possibilities and the problems which could accompany its widespread use. A number of these are discussed here because they help to define the parameters of CHOICES and prepare for realistic expectations.

The first point which should be raised in support of successful integration, is that CHOICES is a powerful resource at the disposal of the counsellor, designed to enhance and complement the counselling process, not to replace it.

Secondly, terminals will be placed in participating schools and can be used as school scheduling permits. There is no ordering of, or waiting for, information and providing transmission breaks do not occur, access is available as needed. It is the user who defines when and how the system will be used.

The major problem forseen in the use of CHOICES, has to do with the attitude of students to information which is generated via a computer. Many of the initial users of CHOICES may not be familiar with the uses and limitations of computerized data bases and will tend to reject suggestions out of hand, or regard them as absolute truths. Assistance will be needed in:

1. adequate preparation for using the system;
2. realistic evaluation of the information supplied;
3. viewing CHOICES as only one of the components available in the counselling process.

In other words, the user will really have to work at getting the most from the system. CHOICES will not tell him or her what type of work to do, it will solicit information from the client and present suggestions on the basis of what it is "told". What the client puts into the system is the means by which all possible information is sorted and limited so that, in theory each user should only be presented with that material which can in some sense, be useful.

While it is true that CHOICES places demands on the counselling force and will probably require some rescheduling at the school level, it will also reduce the problems normally associated with career counselling and allow more time for work with individual students. (A detailed description of just what is involved is presented in the next section.)

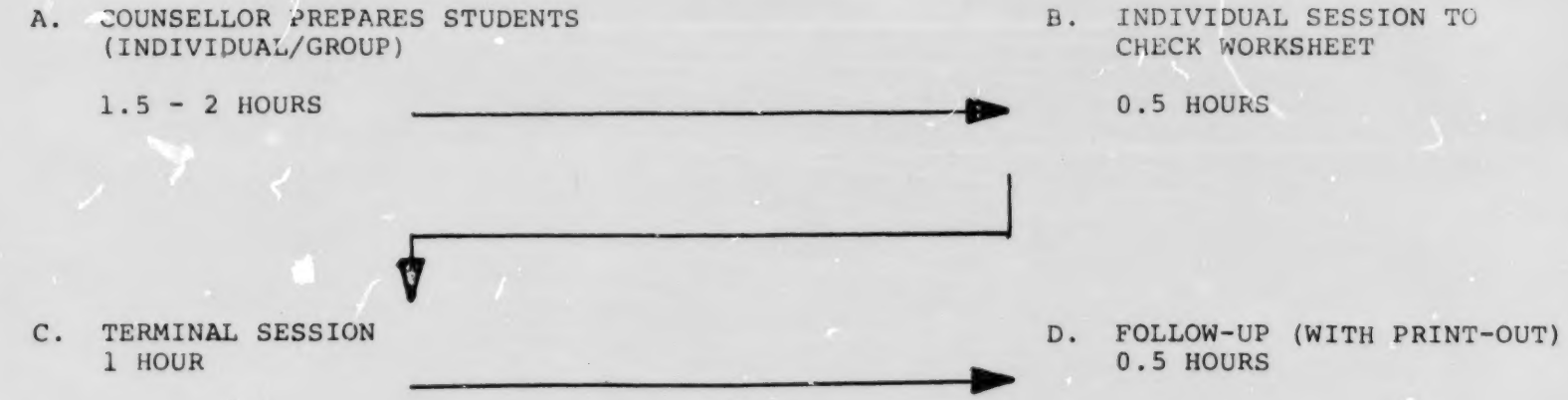
Using CHOICES to enhance career counselling will require a number of steps. The emphasis and time spent on each of these steps, will depend on the background of the student (client) and the degree to which the counsellor is familiar with the system. In general, however, the following should be accounted for.

1. Orientation to objectives and goals of career counselling;
2. General orientation to the CHOICES program;
3. Preparation for accessing the system;
4. Individual preparation for approaching the system;
5. CHOICES/client interaction;
6. Immediate follow-up;
7. Possible system re-entry.

Possible use of counsellor time is shown in Figure I. Because only approximately one quarter of this time is devoted to the "simulated conversation" between the user and the terminal, it is clear that CHOICES has been developed for use only as part of a complete career counselling program. To meet its objectives, the system relies heavily on diagnosis of individual situations, careful follow-up and appropriate guidance in the interpretation of information.

FIGURE I

USE OF COUNSELLOR TIME



* With average students, up to four hours counsellor time commitment may be expected. Special needs students may require more follow-up time.

HOW DOES IT WORK?

GENERAL DESCRIPTION

The two major categories of information (files) which will be contained in the CHOICES system are the OCCUPATIONS FILE and the INSTITUTIONS FILE.

Information contained in the Occupations File is derived originally from the Canadian Classification and Dictionary of Occupations (CCDO) and, specifically for British Columbia, from Careers Provinces, a CEIC publication. Details are included for over 1,100 different prime occupations, plus brief descriptions of an additional 3,200 similar occupations. Information may be accessed in either English or French and none of the information is based on gender.

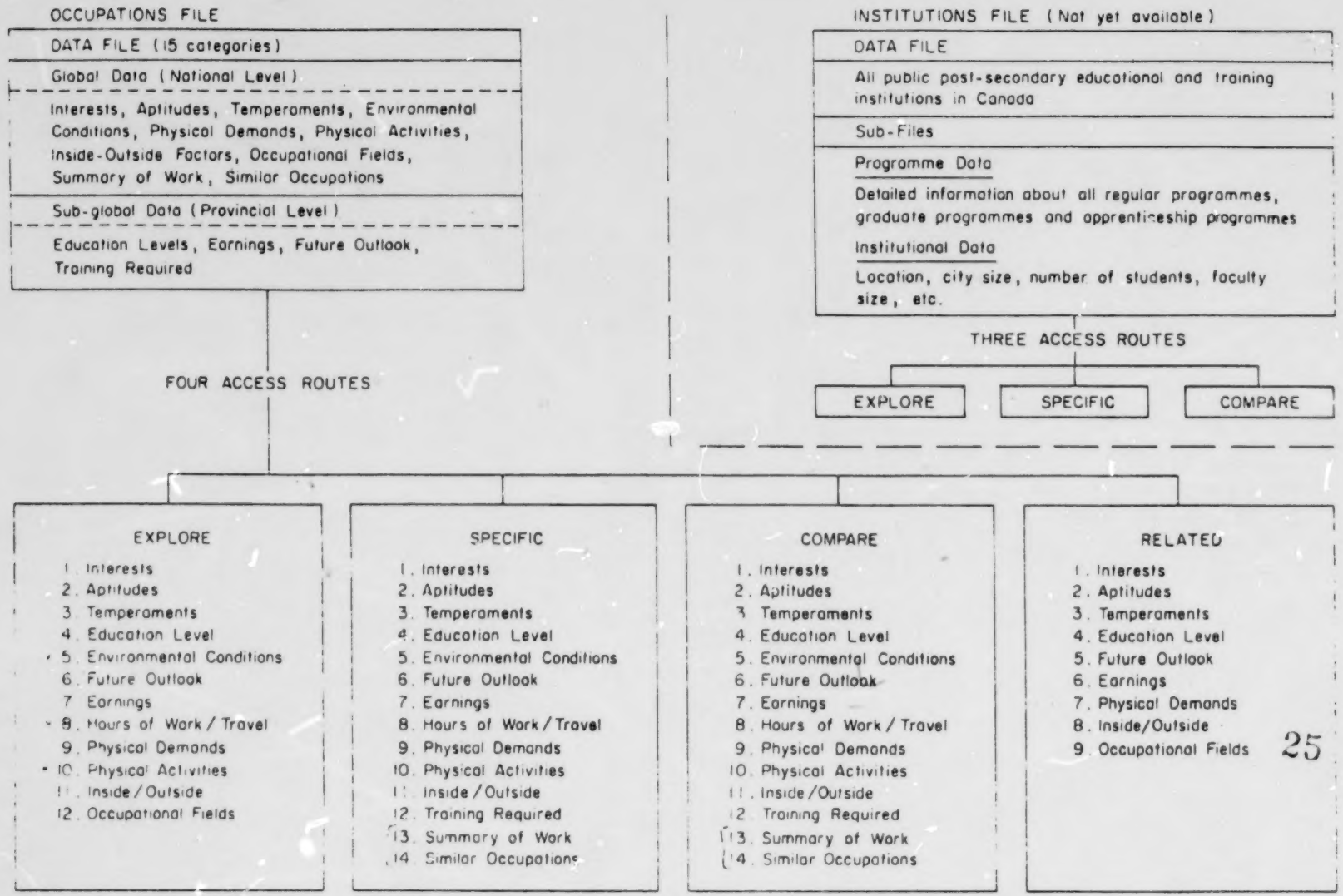
The Institutions File will eventually contain information on all public post-secondary educational and training institutions in Canada, with descriptions of regular, graduate and apprenticeship programs and subsiduary institutional information having to do with location, size, faculty and other characteristics.

The structure of the CHOICES system (as it now stands) is shown in Figure 2.

The data bases of both files will be maintained and updated by British Columbia Systems Corporation on a main-frame computer.

FIGURE 2.

STRUCTURE OF THE CHOICES SYSTEM



The data in the Occupations File are "manipulated" by information which is fed into the system by the user. This occurs when the user responds to questions put to him or her, related to personal characteristics (interests, aptitudes, temperament). In addition, and on the basis of the personal data, the user has available four informational routes. Broad occupational routes can be explored, specific occupations can be studied, occupations may be compared and related employment examined. A fifth route labelled "Why Not?"- allows the user to broaden the scope of the "explore" route in order to consider a broader variety of occupations.

WORKING THROUGH THE SYSTEM

Because data are sorted not only by personal characteristics, but by major route and the specific questions posed in that route, the information which emerges may be in a variety of forms, geared to the level and needs of the user.

In the demonstration conversation which follows, it may be useful to keep a number of points in mind.

1. The mythical user, in this case, already has an undergraduate degree and is therefore a little firmer in priorities and preferences than most

high school students would be on using CHOICES for the first time.

2. Before using the terminal, the user has spent some time filling out the Travel Guide, which initially defines major interests and approach to the system. The guide is designed to help users focus only on those things which they know are important to them. Good counselling assistance at this stage will be instrumental in making best use of the system.

3. The degree to which each response helps to define an occupational area, is indicated by the running totals of occupations which accompany each personal characteristic. (In this case, they appear first next to "aptitudes".) The sample size of all possible occupations which apply to the user, decreases as more information is fed in.

4. The conversation is guided by six major selections - the information file (OCCUPATIONS), the geographic region by province (BRITISH COLUMBIA), initial choice of route (EXPLORE) and supplementary routes (SPECIFIC, COMPARE, RELATED).

5. As may well be the case with most first-time users, most of the terminal time is concentrated on the EXPLORE route.

6. Although the conversation presented is that which emerged on the CHOICES printout, it is arranged a little differently (in the interests of space) and some non-vital or repetitive portions have been omitted.

7. The conversation shown represents approximately forty-five minutes of actual terminal time.

WELCOME TO CHOICES

WHICH LANGUAGE SHALL WE USE? (PLEASE TYPE E FOR ENGLISH OR F FOR FRENCH, THEN PRESS THE "RETURN" KEY ON THE RIGHT HAND SIDE OF THE KEYBOARD). E

OKAY! NOW PLEASE TYPE IN YOUR FIRST NAME. TOUCH 'RETURN' WHEN YOU HAVE FINISHED. (IN FACT, WHENEVER YOU HAVE FINISHED ANSWERING ANY QUESTION, YOU'LL HAVE TO PUSH RETURN SO I'LL KNOW WHEN YOU'VE FINISHED.)

CAROL, HAVE I GOT YOUR NAME RIGHT? (Y OR N). Y

IS THIS THE FIRST TIME WE HAVE SPOKEN WITH EACH OTHER (Y OR N) Y

HELLO CAROL. IT'S A PLEASURE TO WORK WITH YOU. I'M CHOICES. I WAS CREATED BY THE CANADA EMPLOYMENT AND IMMIGRATION COMMISSION TO ASSIST PEOPLE IN MAKING CAREER DECISIONS. I'LL TRY MY BEST TO PROVIDE INFORMATION WHICH HELPS YOU CAROL, BUT PLEASE DON'T EXPECT ME TO DO THE WHOLE JOB! YOU'LL STILL HAVE TO MAKE YOUR OWN DECISIONS. YOU CAN BASE THEM ON WHAT I'M ABLE TO TELL YOU, BUT ALSO ON THE ADVICE OF YOUR COUNSELLOR, FAMILY OR FRIENDS. YOU WILL RECEIVE A PRINTED COPY OF OUR CONVERSATION, I SUGGEST YOU USE THIS AS A STEPPING STONE TO A MORE DETAILED EXPLORATION OF YOUR CAREER POSSIBILITIES. IF YOU NEED ANY HELP AT THIS TERMINAL, DO NOT HESITATE TO ASK SOMEONE WHO WORKS HERE. THERE ARE TWO MAJOR SECTIONS IN MY MEMORY. I CALL THEM FILES. ONE IS USED FOR EXPLORING OCCUPATIONS. THE OTHER IS USED FOR EXPLORING SCHOOLS OR INSTITUTIONS WHERE YOU CAN GET THE EDUCATION AND TRAINING YOU MAY REQUIRE. IF YOU ARE NOT ABSOLUTELY SURE OF THE OCCUPATION YOU ARE BEST SUITED FOR, I SUGGEST YOU START WITH OCCUPATIONS. WHAT WOULD YOU LIKE TO DO FIRST? (PLEASE TYPE IN 1 OR 2) 1. CONSIDER OCCUPATIONS. 2. CONSIDER EDUCATIONAL AND TRAINING INSTITUTIONS. 1

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IN WHICH PROVINCE/TERRITORY WOULD YOU LIKE TO EXAMINE OCCUPATIONS?(SELECT ONE) 1. NEWFOUNDLAND 2. PRINCE EDWARD ISLAND 3. NOVA SCOTIA 4. NEW BRUNSWICK 5. QUEBEC 6. ONTARIO 7. MANITOBA 8. SASKATCHEWAN 9. ALBERTA 10. BRITISH COLUMBIA 11. NORTHWEST TERRIROTIRES 12. YUKON TERRITORY 10

OKAY CAROL, WE WILL BE EXAMINING OCCUPATIONS FOR B.C.. SHOULD YOU WISH TO USE ANOTHER PROVINCE/TERRITORY YOU MAY DO SO AT ANY TIME DURING OUR CONVERSATION BY TYPING PROV=NN, WHERE NN IS THE NUMBER OF ANOTHER OF THE ONES I JUST LISTED ABOVE. OKAY, THERE ARE FOUR WAYS WE CAN APPROACH OCCUPATIONS. WHAT WOULD YOU LIKE TO DO FIRST? 1. EXPLORE OCCUPATIONS 2. GET SPECIFIC INFORMATION ON OCCUPATIONS 3. COMPARE UP TO 3 OCCUPATIONS 4. FIND RELATED OCCUPATIONS 1

OKAY CAROL. THERE ARE QUITE A FEW DIFFERENT WAYS WE CAN SEARCH FOR OCCUPATIONS WHICH MAY BE SUITABLE FOR YOU. IN ALL OF THEM HOWEVER, I WILL BE ASKING YOU TO ANSWER SOME QUESTIONS. PLEASE CHOOSE YOUR ANSWER VERY CAREFULLY. THEN MY RESPONSES WILL BE ACCURATE FOR YOU! HERE ARE THE TOPICS AVAILABLE. PLEASE TYPE THE NUMBER(S) OF THE ONE(S) YOU WISH TO USE (WITH A COMMA BETWEEN THEM LIKE THIS: 12,3,4,7,1) TYPE THEM IN ORDER OF IMPORTANCE TO YOU. 1. INTERESTS 2. APTITUDES 3. TEMPERAMENTS 4. EDUCATION LEVEL 5. ENVIRONMENTAL CONDITIONS 6. FUTURE OUTLOOK 7. EARNINGS 8. HOURS OF WORK/TRAVEL 9. PHYSICAL DEMANDS 10. PHYSICAL ACTIVITIES 11. INDOOR/OUTDOOR CONSIDERATIONS 12. OCCUPATIONAL FIELDS 4,2,3,11,9,5,8,1

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YOUR LEVEL OF EDUCATION WILL CERTAINLY AFFECT THE NUMBER OF OCCUPATIONS AVAILABLE TO YOU CAROL. GENERALLY THE HIGHER YOUR EDUCATION, THE MORE OCCUPATIONS WILL BE OPEN TO YOU. WHICH OF THE FOLLOWING IS TRUE FOR YOU? 1. YOU ARE PRESENTLY ATTENDING SCHOOL (ANY EDUCATIONAL/TRAINING INSTITUTION AT ANY LEVEL). 2. YOU ARE NO LONGER IN SCHOOL 2

30

OKAY THEN. FROM THE LIST BELOW, PLEASE SELECT THE NUMBER FOR THE LEVEL WHICH YOU HAVE COMPLETED. LATER IF YOU WISH TO SELECT A HIGHER LEVEL TO SEE HOW MANY MORE OCCUPATIONS WOULD BE AVAILABLE TO YOU, JUST TELL ME YOU WANT TO CHANGE YOUR ANSWER. HERE IS THE LIST (SELECT ONLY ONE NUMBER). 1. UP TO (NOT INCLUDING) GRADE 8 2. GRADE 8 #. GRADE (4. GRADE 10 5. GRADE 11 6. GRADE 12 7. GRADE 13 8. LESS THAN 1 YEAR AFTER HIGH SCHOOL 9. 1 YEAR COMMUNITY SCHOOL OR VOCATIONAL/TECHNICAL/TRADESCHOOL 10. 1 YEAR UNIVERSITY 11. 2 YEARS COMMUNITY COLLEGE OR VOCATIONAL/TECHNICAL/TRADESCHOOL 12. 2 YEARS UNIVERSITY 13. 3 YEARS COMMUNITY COLLEGE OR VOCATIONAL/TECHNICAL INSTITUTION 14. 3 YEARS UNIVERSITY 15. COMPLETE UNDERGRADUATE DEGREE 16. PROFESSIONAL OR GRADUATE DEGREE 15
TOTAL 1121 PREVIOUS 1121 NOW 1061 WHAT SHALL WE DO NOW? 1. CHANGE YOUR LAST ANSWER 2. CHANGE A PREVIOUS ANSWER 3. GO TO YOUR NEXT TOPIC IN 'EXPLORE' 4. START 'EXPLORE' OVER AGAIN 5. LEAVE 'EXPLORE' 6. LEAVE THE SYSTEM 3
EXPLORING OCCUPATIONS THROUGH YOUR ABILITIES CAN BE REWARDING CAROL! HAVE YOU WRITTEN THE GENERAL APTITUDE TEST BATTERY (GATB)? (Y OR N) N
WHAT WE WILL DO THEN IS LET YOU ESTIMATE YOUR APTITUDE LEVELS. IF YOU WISH TO WRITE A TEST TO DETERMINE YOUR LEVELS OF APTITUDE, SEE YOUR COUNSELLOR AFTER YOU LEAVE THE TERMINAL. HAVE YOU FILLED IN YOUR ESTIMATES OF YOUR APTITUDES ON YOUR TRAVEL GUIDE? (Y OR N) Y
WELL DONE CAROL! THIS WILL BE EASY FOR US THEN. WHAT RATING DID YOU GIVE YOURSELF FOR "G" - GENERAL LEARNING ABILITY? (1,2,3,4,5 OR 6): 1
TOTAL: 1121 PREVIOUS: 1061 NOW: 1061 "V" - VERBAL APTITUDE? (1,2,3,4,5, OR 6) 2
TOTAL: 1121 PREVIOUS: 1061 NOW: 1010 "N" - NUMERICAL APTITUDE? 1
TOTAL: 1121 PREVIOUS: 1010 NOW: 1010 "S" - SPATIAL PERCEPTION? 1
TOTAL: 1121 PREVIOUS: 1010 NOW: 1010 "P" - FORM PERCEPTION 1
TOTAL: 1121 PREVIOUS: 1010 NOW: 1010 "Q" - CLERICAL PERCEPTION? 1
TOTAL: 1121 PREVIOUS: 1010 NOW: 1010 "K" - EYE-HAND CO-ORDINATION? 3
TOTAL: 1121 PREVIOUS: 1010 NOW: 970 "F" - FINGER DEXTERITY 3
TOTAL: 1121 PREVIOUS 970 NOW: 950 "M" - MANUAL DEXTERITY 3
TOTAL: 1121 PREVIOUS 950 NOW: 930 YOU HAVE NOW GIVEN ME ESTIMATES FOR ALL 9 APTITUDES. WHAT SHALL WE DO NOW?
1. SEE WHICH OCCUPATIONS REMAIN (IF 25 OR FEWER) 2. CHANGE AN ANSWER IN 'APTITUDES' 3. CHANGE A PREVIOUS ANSWER 4. GO TO YOUR NEXT TOPIC IN 'EXPLORE' 5. START 'EXPLORE' OVER AGAIN 6. LEAVE 'EXPLORE' 7. LEAVE THE SYSTEM 4
YOUR TEMPERAMENTS CAN YIELD USEFUL CLUES ABOUT OCCUPATIONS THAT MAY SATISFY YOU CAROL. PLEASE HAVE A LOOK AT THE FOLLOWING LIST OF TEMPERAMENT FACTORS.
1. PERFORMING A VARIETY OF DUTIES THAT CHANGE OFTEN.
2. REPEATING THE SAME UNCOMPLICATED TASK FOLLOWING SET PROCEDURES.
3. FOLLOWING EXACTLY THE INSTRUCTIONS OF OTHERS; NOT MAKING MANY DECISIONS.
4. WORKING INDEPENDENTLY AND TAKING RESPONSIBILITY FOR YOUR WORK OR THE WORK OF OTHERS.
5. GAINING THE CO-OPERATION OF HELPERS, CO-WORKERS OR CLIENTS.
6. INFLUENCING THE OPINIONS, ATTITUDES OR DECISIONS OF OTHERS.
7. PERFORMING TASKS THAT ARE STRESSFUL OR RISKY, REQUIRING SELF-CONTROL.

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8. MAKING DECISIONS BASED ON PERSONAL KNOWLEDGE, EXPERIENCE AND INTERPRETATION OF INFORMATION.
9. MAKING DECISION BASED ON CONCRETE, REPRODUCABLE EVIDENCE ACCORDING TO MEASURABLE STANDARDS.
10. EXPRESSING YOUR FEELINGS, IDEAS AND PERSONALITY THROUGH YOUR WORK.
11. ENSURING THAT YOUR WORK MEETS STRICT STANDARDS OR SPECIFICATIONS.
CHOOSE ONE TEMPERAMENT AT A TIME. YOU CAN CHOOSE EITHER ONE YOU'D LIKE OR ONE YOU'D DISLIKE.
IF IT'S ONE YOU'D LIKE, TYPE AN L BEFORE IT'S NUMBER LIKE THIS: L7
IF IT'S ONE YOU'D DISLIKE TYPE A D BEFORE IT'S NUMBER LIKE THIS: D3
(DON'T PUT A SPACE OR ANYTHING ELSE BETWEEN THE LETTER AND THE NUMBER). PLEASE TYPE YOUR FIRST TEMPERAMENT NOW. (REMEMBER TO PUT EITHER L OR D BEFORE THE NUMBER). L4 TOTAL: 1121 PREVIOUS: 930 NOW: 498 DO YOU WANT TO ADD ANOTHER TEMPERAMENT FACTOR? (Y OR N) D2 YOUR ANSWER MUST BE EITHER Y OR N. PLEASE TRY AGAIN. Y OKAY THEN, TYPE IN ANOTHER TEMPERAMENT NOW. (REMEMBER THE L OR D BEFORE THE NUMBER) D2 TOTAL 1121: PREVIOUS: 498 NOW: 327 DO YOU WANT TO ADD ANOTHER TEMPERAMENT FACTOR? (Y OR N) D6 YOUR ANSWER MUST BE EITHER Y OR N PLEASE TRY AGAIN. Y OKAY THEN, TYPE IN ANOTHER TEMPERAMENT NOW. (REMEMBER THE L OR D BEFORE THE NUMBER) D6D6 I DON'T UNDERSTAND YOUR ANSWER. PLEASE CAREFULLY RE-READ THE QUESTION AND ANSWER AGAIN. D6 TOTAL: 1121 PREVIOUS: 327 NOW: 235 DO YOU WANT TO ADD ANOTHER TEMPERAMENT FACTOR? (Y OR N) N NOW WE CAN DO ONE OF THE FOLLOWING, WHICH SHALL IT BE CAROL? 1. CHANGE YOUR ANSWER(S) IN 'TEMPERAMENTS' 2. CHANGE A PREVIOUS ANSWER 3. GO TO YOUR NEXT TOPIC in "EXPLORE" 4. START "EXPLORE" OVER AGAIN 5. LEAVE 'EXPLORE" 6. LEAVE THE SYSTEM 3

24

IN MANY OCCUPATIONS YOU WORK MOSTLY INDOORS CAROL. IN OTHERS YOU WORK MOSTLY OUTSIDE. SOME REQUIRE BOTH INSIDE AND OUTSIDE WORK. WHICH WOULD YOU PREFER? (SELECT ONE). 1. WORKING INSIDE (IN BUILDINGS, VEHICLES, ETC.) 2. WORKING OUTSIDE (EXPOSED TO ALL TYPES OF WEATHER). 3. WORKING PARTLY INSIDE AND PARTLY OUTSIDE. 4. I'M NOT SURE 3 TOTAL: 1121 PREVIOUS 235 NOW: 81 WHAT SHALL WE DO NOW? 1. CHANGE YOUR LAST ANSWER 2. CHANGE A PREVIOUS ANSWER 3. GO TO YOUR NEXT TOPIC IN 'EXPLORE' 4. START 'EXPLORE' OVER AGAIN 5. LEAVE 'EXPLORE' 6. LEAVE THE SYSTEM 3
PHYSICAL DEMANDS OF OCCUPATIONS CAN VERY CONSIDERABLY CAROL. WHAT IS THE MAXIMUM AMOUNT OF PHYSICAL WORK YOU WOULD BE WILLING TO DO REGULARLY IN A JOB? PLEASE SELECT ONE OF THE FOLLOWING: 1. SEDENTARY: SITTING AND LIFTING NOT OVER 5KG (10 LBS). 2. LIGHT: OFTEN HANDLING LOADS UP TO 5KG (10 LBS) - SOMETIMES UP TO 11KG (25 LBS). 3. MEDIUM: OFTEN HANDLING LOADS UP TO 11KG (25 LBS) - SOMETIMES UP TO 23KG (50 LBS). 4. HEAVY: OFTEN HANDLING LOADS UP TO 23KG (50 LBS) - SOMETIMES UP TO 45KG (100 LBS). 5. VERY HEAVY: OFTEN HANDLING LOADS OF MORE THAN 23 KG (50LBS) - SOMETIMES MORE THAN 45KG (100 LBS). 6. I'M NOT SURE. 2

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TOTAL 1121 PREVIOUS: 81 NOW: 45 WHAT SHALL WE DO NOW? 1. CHANGE YOUR LAST ANSWER 2. CHANGE A PREVIOUS ANSWER 3. GO TO YOUR NEXT TOPIC IN 'EXPLORE' 4. START 'EXPLORE' OVER AGAIN 5. LEAVE 'EXPLORE' 6. LEAVE THE SYSTEM 3

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MANY OCCUPATIONS REQUIRE PEOPLE TO WORK UNDER CONDITIONS WHICH SOME PEOPLE WOULD CONSIDER UNACCEPTABLE. PLEASE SELECT THE CONDITIONS YOU WOULD NOT BE WILLING TO ACCEPT CAROL. CHOOSE AS MANY AS YOU WISH. (COMMA BETWEEN NUMBERS).

1. WORKING UNDER EXTREME COLD CONDITIONS (CONSIDERABLE EXTRA CLOTHING REQUIRED). 2. WORKING IN EXTREME HEAT (TEMPERATURES MOST OF THE TIME ABOVE 26 CELSIUS). 3. WORKING UNDER DAMP OR WET CONDITIONS. 4. WORKING IN SITUATIONS INVOLVING NOISE AND/OR VIBRATION. 5. WORKING IN SITUATIONS WHERE THERE IS A DEFINITE RISK OF INJURY. 6. WORKING IN SITUATIONS INVOLVING DUST, FUMES, ODOURS, POOR VENTILATION. 7. ALL OF THE ABOVE. 8. I'M NOT SURE. 7
TOTAL: 1121 PREVIOUS: 45 NOW: 25
WHAT WOULD YOU LIKE TO DO NOW? 1. SEE WHICH OCCUPATIONS REMAIN 2. CHANGE YOUR LAST ANSWER 3. CHANGE A PREVIOUS ANSWER 4. GO TO YOUR NEXT TOPIC IN 'EXPLORE' 5. START 'EXPLORE OVER AGAIN 6. LEAVE 'EXPLORE' 7. LEAVE THE SYSTEM 4
HERE IS A LIST SHOWING DIFFERENT PATTERNS OF WORK PERIODS. IT INCLUDES ONE TRAVEL FACTOR. PLEASE TYPE IN THE ITEMS WHICH YOU WOULD NOT BE WILLING TO ACCEPT CAROL. (COMMA BETWEEN NUMBERS). 1. SHIFT WORK 2. WORK DURING EVENINGS OR NIGHTS 3. WORK DURING WEEKENDS 4. OVERTIME WORK 5. SEASONAL WORK 6. WORK REQUIRING SOME TRAVEL 7. ALL OF THE ABOVE 8. I'M NOT SURE. LET'S SKIP THIS QUESTION. 1,2,3 TOTAL: 1121 PREVIOUS: 25 NOW: 10
WHAT WOULD YOU LIKE TO DO NOW? 1. SEE WHICH OCCUPATIONS REMAIN 2. CHANGE YOUR LAST ANSWER 3. CHANGE A PREVIOUS ANSWER 4. GO TO YOUR NEXT TOPIC IN 'EXPLORE' 5. START 'EXPLORE OVER AGAIN 6. LEAVE 'EXPLORE' 7. LEAVE THE SYSTEM 1
FOR THE PROVINCE/TERRITORY OF B.C. IN VIEW OF YOUR ANSWERS TO THIS POINT, I THINK YOU SHOULD CONSIDER THE FOLLOWING TYPES OF OCCUPATIONS: 2217-276 OBSERVER, SEISMIC PROSPECTING 2131-130 HORTICULTURIST 2135-252 ZOOLOGICAL TECHNICIAN 2143-142 PIPELINE ENGINEER 2143-154 WATER-RESOURCES ENGINEER 2144-150 PLANT ENGINEER, ELECTRICAL 2165-214 AGRICULTURAL-ENGINEERING TECHNICIAN 2165-222 CIVIL-ENGINEERING TECHNICIAN 5172-110 APPRAISER, REAL ESTATE 5199-110 APPRAISER. THE ABOVE OCCUPATIONS SEEM REASONABLE TO ME AS I REVIEW THE THINGS YOU HAVE TOLD ME. IF SOME SEEM UNSUITABLE TO YOU, YOU MIGHT CONSIDER CHANGING ONE OR MORE OF YOUR ANSWERS.
WHAT WOULD YOU LIKE TO DO NOW CAROL? 1. CHANGE ONE OF YOUR ANSWERS 2. GET INFORMATION ON ANY OF THESE OCCUPATIONS 3. FIND OUT WHY AN OCCUPATION WASN'T LISTED 4. GO TO YOUR NEXT TOPIC IN 'EXPLORE' 5. START 'EXPLORE' OVER AGAIN 6. LEAVE 'EXPLORE' 7. LEAVE THE SYSTEM 4
YOUR INTERESTS CAN BE VERY HELPFUL IN IDENTIFYING PROMISING POSSIBILITIES; CAROL. HAVE YOU WRITTEN THE CANADIAN OCCUPATIONAL INTEREST INVENTORY (COII)/ (Y OR N). N
OKAY. WE CAN DECIDE WHICH OF MY 10 INTEREST FACTORS SEEM MOST APPROPRIATE FOR YOU. LATER, IF YOU WISH TO TAKE A TEST ON YOUR INTERESTS, ASK YOUR COUNSELLOR ABOUT THE CANADIAN OCCUPATIONAL INTEREST INVENTORY (COII). ALL RIGHT. PLEASE HAVE A LOOK AT THE FOLLOWING LIST OF INTERESTS CAROL. 1. WORKING WITH THINGS, NUMBERS OR OBJECTS. 2. WORKING WITH PEOPLE AS CLIENTS, CUSTOMERS OR ASSOCIATES IN BUSINESS SITUATIONS. 3. DOING ROUTINE, DETAILED, ORGANIZED WORK. 4. WORKING TO IMPROVE THE SOCIAL CONDITIONS OF OTHERS. 5. DIRECTING, PLANNING OR ORGANIZING ACTIVITIES OFTEN RESULTING IN THE RESPECT OF OTHERS. 6. STUDYING AND COMMUNICATING IDEAS OR INFORMATION ABOUT THE SUBJECT OF PEOPLE OR ANIMALS. 7. DOING WORK THAT REQUIRES A SCIENTIFIC, TECHNICAL OR ANALYTICAL APPROACH TO FACTS. 8. DOING ABSTRACT OR CREATIVE WORK. 9. WORKING WITH MACHINES, PROCESSES OR TECHNIQUES. 10. DOING WORK IN WHICH YOU CAN SOON SEE CLEAR RESULTS. CHOOSE ONE INTEREST AT A TIME FROM THE ABOVE LIST. YOU CAN CHOOSE EITHER ONE YOU'D LIKE OR ONE YOU'D DISLIKE. IF IT'S ONE YOU'D LIKE TYPE AN L BEFORE ITS NUMBER LIKE THIS: L8. IF IT'S ONE YOU'D DISLIKE TYPE A D BEFORE ITS NUMBER LIKE THIS: D5. (DON'T PUT A SPACE OR ANYTHING ELSE BETWEEN THE LETTER AND NUMBER.)

PLEASE TYPE YOUR FIRST INTEREST NOW. (REMEMBER THE L OR D BEFORE THE NUMBER) L1
TOTAL: 1121 PREVIOUS: 10 NOW: 10
DO YOU WANT TO ADD ANOTHER INTEREST CAROL? (Y OR N) L7 YOUR ANSWER MUST BE EITHER Y OR N. PLEASE TRY AGAIN.
Y OKAY THEN, TYPE THE NUMBER OF ANOTHER INTEREST NOW. (REMEMBER THE L OR D BEFORE THE NUMBER.) L7
TOTAL: 1121 PREVIOUS: 10 NOW: 8 DO YOU WANT TO ADD ANOTHER INTEREST CAROL? (Y OR N) Y
OKAY THEN, TYPE THE NUMBER OF ANOTHER INTEREST NOW. (REMEMBER THE L OR D BEFORE THE NUMBER.) D3
TOTAL: 1121 PREVIOUS: 8 NOW: 8 DO YOU WANT TO ADD ANOTHER INTEREST CAROL? (Y OR N) Y
OKAY THEN, TYPE THE NUMBER OF ANOTHER INTEREST NOW. (REMEMBER THE L OR D BEFORE THE NUMBER.) D5
TOTAL: 1121 PREVIOUS: 8 NOW: 8 DO YOU WANT TO ADD ANOTHER INTEREST CAROL? (Y OR N) N
WHAT NOW CAROL?
1. SEE WHICH OCCUPATIONS REMAIN 2. CHANGE YOUR ANSWER(S) IN 'INTERESTS' 3. CHANGE A PREVIOUS ANSWER 4. GO TO YOUR NEXT TOPIC IN 'EXPLORE' 5. START 'EXPLORE' OVER AGAIN 6. LEAVE 'EXPLORE' 7. LEAVE THE SYSTEM 1
FOR THE PROVINCE/TERRITORY OF B.C. IN VIEW OF YOUR ANSWERS TO THIS POINT, I THINK YOU SHOULD CONSIDER THE FOLLOWING TYPES OF OCCUPATIONS: 21 /-276 OBSERVER, SEISMIC PROSPECTING 2131-130 HORTICULTURIST 2135-252 ZOOLOGICAL TECHNICIAN 2143-142 PIPELINE ENGINEER 2143-154 WATER-RESOURCES ENGINEER 2144-150 PLAN ENGINEER, ELECTRICAL 2165-214 AGRICULTURAL-ENGINEERING TECHNICIAN 2165-222 CIVIL-ENGINEERING TECHNICIAN THE ABOVE OCCUPATIONS SEEM REASONABLE TO ME AS I REVIEW THE THINGS YOU HAVE TOLD ME. IF SOME SEEM UNSUITABLE TO YOU, YOU MIGHT CONSIDER CHANGING ONE OR MORE OF YOUR ANSWERS. WHAT WOULD YOU LIKE TO DO NOW CAROL?
1. CHANGE ONE OF YOUR ANSWERS 2. GET INFORMATION ON ANY OF THESE OCCUPATIONS 3. FIND OUT WHY AN OCCUPATION WASN'T LISTED 4. GO TO YOUR NEXT TOPIC IN 'EXPLORE' 5. START 'EXPLORE' OVER AGAIN 6. LEAVE 'EXPLORE' 7. LEAVE THE SYSTEM 1
OKAY SO FAR YOU HAVE USED THE FOLLOWING TOPIC(S). TYPE IN THE NUMBER OF THE ONE YOU WISH TO RETURN TO.
1. INTERESTS 2. APTITUDES 3. TEMPERAMENTS 4. EDUCATION LEVEL 5. ENVIRONMENTAL CONDITIONS 8. HOURS OF WORK/TRAVEL 9. PHYSICAL DEMANDS 11. INDOOR/OUTDOOR CONSIDERATIONS 11
OKAY. I HAVE ERASED YOUR LAST ANSWER. LET'S TRY AGAIN! WHICH WOULD YOU PREFER? (SELECT ONE).
1. WORKING INSIDE (IN BUILDINGS, VEHICLES, ETC.) 2. WORKING OUTSIDE (EXPOSED TO ALL TYPES OF WEATHER). 3. WORKING PARTLY INSIDE AND PARTLY OUTSIDE. 4. I'M NOT SURE 1
TOTAL: 1121 PREVIOUS: 8 NOW: 16 WHAT WOULD YOU LIKE TO DO NOW?
1. SEE WHICH OCCUPATIONS REMAIN 2. CHANGE YOUR LAST ANSWER 3. CHANGE A PREVIOUS ANSWER 4. GO TO YOUR NEXT TOPIC IN 'EXPLORE' 5. START 'EXPLORE OVER AGAIN 6. LEAVE 'EXPLORE' 7. LEAVE THE SYSTEM 1
FOR THE PROVINCE/TERRITORY OF B.C. IN VIEW OF YOUR ANSWERS TO THIS POINT, I THINK YOU SHOULD CONSIDER THE FOLLOWING TYPES OF OCCUPATIONS: 1174-122 OCCUPATIONAL ANALYST 2117-240 ASSAYER 2117-268 TEXTILE TECHNICIAN 2135-166 FOOD TECHNOLOGIST 2145- 138 QUALITY-CONTROL ENGINEER 2165-238 INDUSTRIAL-ENGINEERING TECHNICIAN 2169-114 AERIAL-PHOTOGRAPH ANALYST 2183-118 PROGRAMMER, BUSINESS 2183-122 PROGRAMMER, ENGINEERING AND SCIENTIFIC 2351-146 ARCHIVIST 2353-130 CATALOGUER, MUSEUM 3152-122 DIETICIAN 3156-144 CYTOTECHNOLOGIST 3156-126 MICROBIOLOGY TECHNOLOGIST 6129-110 ANALYST, FOOD AND BEVERAGE 8226-110 FOOD TESTER

THE ABOVE OCCUPATIONS SEEM REASONABLE TO ME AS I REVIEW THE THINGS YOU HAVE TOLD ME. IF SOME SEEM UNSUITABLE TO YOU, YOU MIGHT CONSIDER CHANGING ONE OR MORE OF YOUR ANSWERS. WHAT WOULD YOU LIKE TO DO NOW CAROL?
1. CHANGE ONE OF YOUR ANSWERS 2. GET INFORMATION ON ANY OF THESE OCCUPATIONS 3. FIND OUT WHAY AN OCCUPATION WASN'T LISTED 4. GO TO YOUR NEXT TOPIC IN 'EXPLORE' 5. START 'EXPLORE' OVER AGAIN 6. LEAVE 'EXPLORE' 7. LEAVE THE SYSTEM
3
FINE. PLEASE TYPE IN THE 7-DIGIT CODE NUMBER OF THE OCCUPATION YOU WOULD LIKE TO HAVE SEEN ON THE LIST. 2183110
SYSTEMS ANALYST, BUSINESS .....IS THIS RIGHT? (Y OR N). Y
2183-110 SYSTEMS ANALYST, BUSINESS THIS OCCUPATION WAS ELIMINATED FROM YOUR LIST BECAUSE: INTERESTS
YOU SAID YOU WOULD PREFER TO AVOID THE FOLLOWING FACTOR(S) WHICH DO APPLY TO WORK IN THIS OCCUPATION: 05 -DIRECTING, ORGANIZING OR PLANNING AN ACTIVITY
WHAT WOULD YOU LIKE TO DO NOW? (SELECT ONE). 1. FIND OUT WHY ANOTHER WASN'T LISTED 2. CHANGE ONE OF YOUR ANSWERS TO THIS POINT 3. GO TO YOUR NEXT TOPIC IN 'EXPLORE' 4. START 'EXPLORE' OVER AGAIN 5. LEAVE 'EXPLORE'
6. LEAVE THE SYSTEM 8589299
YOUR ANSWER MUST BE ONE NUMBER FROM 1 TO 6. PLEASE TRY AGAIN. 1
FINE. PLEASE TYPE IN THE 7-DIGIT CODE NUMBER OF THE OCCUPATION YOU WOULD LIKE TO HAVE SEEN ON THE LIST. 8589299
MECHANIC, SMALL ENGINES.....IS THIS RIGHT? (Y OR N). Y
8589-299 MECHANIC, SMALL ENGINES THIS OCCUPATION WAS ELIMINATED FROM YOUR LIST BECAUSE: INTERESTS
YOU REQUESTED THE FOLLOWING INTEREST FACTOR(S) WHICH DO NOT FIT THIS OCCUPATION: 07 -ANALYTICAL, SCIENTIFIC OR TECHNICAL WORK
TEMPERAMENTS EA(S): YOU EXPRESSED A PREFERENCE FOR THE FOLLOWING TEMPERAMENT FACTOR(S) WHICH DO NOT FIT THIS OCCUPATION: 04 -WORKING INDEPENDENTLY AND TAKING RESPONSIBILITY
PHYSICAL DEMANDS THIS OCCUPATION REQUIRES MORE PHYSICAL EFFORT THAN YOU SAID YOU WANT TO MAKE.
WHAT WOULD YOU LIKE TO DO NOW? (SELECT ONE). 2
OKAY SO FAR YOU HAVE USED THE FOLLOWING TOPIC(S). TYPE IN THE NUMBER OF THE ONE YOU WISH TO RETURN TO.
1 INTERESTS 2 APTITUDES 3 TEMPERAMENTS 4 EDUCATION LEVEL 5 ENVIRONMENTAL CONDITIONS 8 HOURS OF WORK/TRAVEL 9 PHYSICAL DEMANDS 11 INDOOR/OUTDOOR CONSIDERATIONS 1
OKAY, WHICH WOULD YOU PREFER? 1. CHANGE YOUR ANSWER(S) ON INTERESTS YOU WOULD LIKE. 2. CHANGE YOUR ANSWER(S) ON INTERESTS YOU WOULD NOT LIKE. 3. START 'INTERESTS' ALL OVER AGAIN. 2
YOU SAID YOU WOULD NOT LIKE: 3. DETAILED, ORGANIZED WORK BASED ON REGULAR SEQUENCES. 5. DIRECTING, ORGANIZING OR PLANNING ACTIVITY.
WHAT DO YOU WANT TO DO? 1. CHANGE ONE OF THESE. 2. ERASE ONE OF THEM. 3. ADD ONE MORE. 2
PLEASE TYPE IN ITS NUMBER. 5
OKAY, I HAVE DELETED THAT INTEREST. LET'S GO ON. TOTAL: 1121 PREVIOUS: 16 NOW: 24
DO YOU WANT TO ADD ANOTHER INTEREST CAROL? (Y OR N) N
WHAT NOW CAROL? 1. SEE WHICH OCCUPATIONS REMAIN 2. CHANGE YOUR ANSWER(S) IN 'INTERESTS' 3. CHANGE A PREVIOUS ANSWER 4. GO TO YOUR NEXT TOPIC IN 'EXPLORE' 5. START 'EXPLORE' OVER AGAIN 6. LEAVE 'EXPLORE' 7. LEAVE THE SYSTEM
1

FOR THE PROVINCE/TERRITORY OF B.C. IN VIEW OF YOUR ANSWERS TO THIS POINT, I THINK YOU SHOULD CONSIDER THE FOLLOWING TYPES OF OCCUPATIONS: 1174-122 OCCUPATIONAL ANALYST 1175-118 PURCHASING OFFICER, MATERIAL 2117-240 ASSAYER 2117-268 TEXTILE TECHNICIAN 2135-166 FOOD TECHNOLOGIST 2145-138 QUALITY-CONTROL ENGINEER 2185-238 INDUSTRIAL-ENGINEERING TECHNICIAN 2169-114 AERIAL-PHOTOGRAPH ANALYST 2183-110 SYSTEMS ANALYST, BUSINESS 2183-114 SYSTEMS ANALYST, ENGINEERING AND SCIENTIFIC 2183-118 PROGRAMMER, BUSINESS 2183-122 PROGRAMMER, ENGINEERING AND SCIENTIFIC 2350-110 CURATOR, MUSEUM 2351-146 ARCHIVIST 2353-130 CATALOGUER, MUSEUM 3137-118 OCCUPATIONAL THERAPIST 3137-122 PHYSIOTHERAPIST (REHIBILITATION THERAPIST) 3152-122 DIETITIAN 3156-114 CYTOTECHNOLOGIST 3156-126 MICRO-BIOLOGY TECHNOLOGIST 4151-118 MOTOR VEHICLE REPAIR CO-ORDINATOR 6116-006 LOGISTICS OFFICER (MIL) 6129-110 ANALYST, FOOD AND BEVERAGE 8226-110 FOOD TESTER
THE ABOVE OCCUPATIONS SEEM REASONABLE TO ME AS I REVIEW THE THINGS YOU HAVE TOLD ME. IF SOME SEEM UNSUITABLE TO YOU, YOU MIGHT CONSIDER CHANGING ONE OR MORE OF YOUR ANSWERS. WHAT WOULD YOU LIKE TO DO NOW CAROL?
1. CHANGE ONE OF YOUR ANSWERS 2. GET INFORMATION ON ANY OF THESE OCCUPATIONS 3. FIND OUT WHY AN OCCUPATION WASN'T LISTED 4. GO TO YOUR NEXT TOPIC IN 'EXPLORE' 5. START 'EXPLORE' OVER AGAIN 6. LEAVE 'EXPLORE' 7. LEAVE THE SYSTEM
6
WHAT SHALL WE DO NOW CAROL? 1. EXPLORE OCCUPATIONS. 2. GET SPECIFIC INFORMATION. 3. COMPARE OCCUPATIONS. 4. FIND RELATED OCCUPATIONS. 5. GO TO THE 'INSTITUTIONS' FILE. 6. LEAVE THE SYSTEM. 2
FINE CAROL. I CAN PROVIDE INFORMATION ON ANY OF THE OCCUPATIONS ON THE MASTER LTST OF OCCUPATIONS. WHICH OCCUPATION WOULD YOU LIKE TO FIND OUT ABOUT NOW? PLEASE TYPE IN ITS 7-DIGIT CODE NUMBER. 3156114
CYTOTECHNOLOGIST.....IS THIS RIGHT? (Y OR N). Y
WOULD YOU LIKE TO SEE THE LIST OF TOPICS AVAILABLE IN SPECIFIC? (Y OR N). Y
GOOD! BELOW IS A LIST OF THE THINGS I CAN TELL YOU ABOUT THIS OCCUPATION. SELECT WHATEVER TOPICS ARE IMPORTANT TO YOU. (TYPE A COMMA BETWEEN THE NUMBERS, LIKE THIS: 4,9,11,2,3).
1. INTERESTS 2. APTITUDES 3. TEMPERAMENTS 4. EDUCATION LEVEL 5. ENVIRONMENTAL CONDITIONS 6. FUTURE OUTLOOK 7. EARNINGS 8. HOURS OF WORK/TRAVEL 9. PHYSICAL DEMANDS 10. PHYSICAL ACTIVITIES 11. INSIDE/OUTSIDE CONSIDERATIONS 12. TRAINING REQUIRED 13. SUMMARY OF WORK PERFORMED 14. SIMILAR OCCUPATIONS 15. ALL OF THESE TOPICS 13
HERE IS YOUR SPECIFIC INFORMATION FOR B.C.: 3156-114 CYTOTECHNOLOGIST
STAINS, MOUNTS AND STUDIES CELLS OF THE HUMAN BODY, PLANTS AND ANIMALS, TO DETERMINE ABNORMALITIES THAT SUGGEST DISEASES SUCH AS CANCER: RECEIVES SAMPLINGS OF BODY SECRETIONS OR SCRAPINGS, USUALLY ON GLASS SLIDE. STAINS SLIDE WITH SPECIAL DYES, SO THAT THE CHARACTERISTICS OF EACH INDIVIDUAL CELL MAY BE EASILY SEEN. STUDIES SLIDES OF CELL SAMPLINGS UNDER MICROSCOPE, TO DETECT SIGNS OF DISEASE. OBSERVES ABNORMALITIES IN COLOUR, SIZE AND SHAPE OF CELL SUBSTANCE TO DETECT PRESENCE OF MALIGNANT OR NON-MALIGNANT CONDITION, SIGNS OF RADIATION CHANGES, EVIDENCE OF INFECTIVE PROCESSES, AND TO MAKE HORMONAL EVALUATIONS. PERFORMS VARIETY OF LABORATORY TESTS AND ANALYSES TO CONFIRM FINDINGS. REPORTS INFORMATION TO PATHOLOGIST OR REFERRING PHYSICIAN.
WOULD YOU LIKE TO INCLUDE OTHER TOPICS FOR THIS OCCUPATION? (Y OR N). N
WOULD YOU LIKE TO GET SPECIFIC INFORMATION ABOUT ANOTHER OCCUPATION? (Y OR N). N

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IF YOU WOULD LIKE TO OBTAIN MORE DETAILED INFORMATION ON ANY OCCUPATIONS, ASK FOR THE APPROPRIATE CAREERS CANADA BOOKLETS OR CAREERS PROVINCES LEAFLETS. THESE, AND OTHER INFORMATION MATERIALS, ARE AVAILABLE IN THIS OFFICE. WHAT SHALL WE DO NOW CAROL? 1. EXPLORE OCCUPATIONS. 2. GET SPECIFIC INFORMATION. 3. COMPARE OCCUPATIONS 4. FIND RELATED OCCUPATIONS. 5. GO TO THE 'INSTITUTIONS' FILE. 6. LEAVE THE SYSTEM. 3
OKAY CAROL, WE CAN COMPARE TWO OR THREE OCCUPATIONS AT A TIME. WHICH WILL IT BE? 1. COMPARE 2 OCCUPATIONS. 2. COMPARE THREE OCCUPATIONS. 2
PLEASE TYPE IN THE 7-DIGIT CODE NUMBER OF THE FIRST OCCUPATION NOW. 3156114 CYTOTECHNOLOGIST.....IS THIS RIGHT? (Y OR N). Y
GOOD! TYPE THE NUMBER OF YOUR 2ND OCCUPATION NOW. 3151626 MICROBIOLOGY TECHNOLOGIST.....IS THIS RIGHT? (Y OR N). Y
OKAY, PLEASE TYPE THE NUMBER OF YOUR 3RD OCCUPATION. 6129110 ANALYST, FOOD AND BEVERAGE.....IS THIS RIGHT? (Y OR N) Y
GOOD! HERE ARE THE TYPES OF INFORMATION ABOUT THESE OCCUPATIONS WHICH YOU CAN COMPARE, SELECT AS MANY AS YOU WISH. PLEASE TYPE A COMMA BETWEEN THE NUMBERS LIKE THIS: 4,9,2,14 1. INTERESTS. 2. APTITUDES. 3. TEMPERAMENTS. 4. EDUCATION LEVEL. 5. ENVIRONMENTAL CONDITIONS 6. FUTURE OUTLOOK. 7. EARNINGS 8. HOURS OF WORK/TRAVEL. 9. PHYSICAL DEMANDS 10. PHYSICAL ACTIVITIES 11. INSIDE/OUTSIDE CONSIDERATIONS 12. TRAINING REQUIRED. 13. BRIEF WORK SUMMARY 14. SIMILAR OCCUPATIONS 15. ALL OF THESE TOPICS 3
HERE IS YOUR COMPARISON: 3156-114 CYTOTECHNOLOGIST 3156-126 MICROBIOLOGY TECHNOLOGIST 6129-110 ANALYST, FOOD AND BEVERAGE

	B.C. CYTOTECHNOLOGIST 3158-114	B.C. MICROBIOLOGY TECHNOLOGIST 3158-126	B.C. ANALYST, FOOD AND BEVERAGE 6129-110
TEMPERAMENTS	- HAS MANY DUTIES WITH FREQUENT CHANGE - WORKING INDEPENDENTLY AND TAKING RESPONSIBILITY - MAKING DECISIONS BASED ON CONCRETE EVIDENCE - ENSURING YOUR WORK MEETS STRICT STANDARDS.	- HAS MANY DUTIES WITH FREQUENT CHANGE - WORKING INDEPENDENTLY AND TAKING RESPONSIBILITY - MAKING DECISIONS BASED ON CONCRETE EVIDENCE - ENSURING YOUR WORK MEETS STRICT STANDARDS.	- WORKING INDEPENDENTLY AND TAKING RESPONSIBILITY - MAKING DECISIONS BASED ON PERSONAL KNOWLEDGE OR EXPERIENCE - MAKING DECISIONS BASED ON CONCRETE EVIDENCE - ENSURING YOUR WORK MEETS STRICT STANDARDS.

WOULD YOU LIKE TO COMPARE OTHER TOPICS FOR THESE OCCUPATIONS? (Y OR N). N
WOULD YOU LIKE TO COMPARE DIFFERCNT OCCUPATIONS? (Y OR N). N
IF YOU WOULD LIKE TO OBTAIN MORE DETAILED INFORMATION ON ANY OCCUPATIONS, ASK FOR THE APPROPRIATE CAREERS CANADA BOOKLETS OR CAREERS PROVINCES LEAFLETS. THESE, AND OTHER INFORMATION MATERIALS, ARE AVAILABLE IN THIS OFFICE.
WHAT SHALL WE DO NOW CAROL?

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1. EXPLORE OCCUPATIONS. 2. GET SPECIFIC INFORMATION. 3. COMPARE OCCUPATIONS. 4. FIND RELATED OCCUPATIONS.
5. GO TO THE 'INSTITUTIONS' FILE. 6. LEAVE THE SYSTEM. 4
FINE CAROL. OCCUPATIONS CAN BE RELATED IN A VARIETY OF WAYS. FOR EXAMPLE, MANY OCCUPATIONS REQUIRE ABOUT THE SAME LEVEL OF EDUCATION. OTHERS INVOLVE THE SAME PHYSICAL ACTIVITIES, AND SO ON. IN RELATING OCCUPATIONS NOW WE WON'T NECESSARILY IDENTIFY ONES INVOLVING SIMILAR DUTIES OR SKILLS, IN FACT, SINCE WE'LL BE RELATING ON THE BASIS OF FACTORS OTHER THAN THE ACTUAL WORK PERFORMED, MANY OF THOSE I LIST FOR YOU MAY BE TOTALLY UNRELATED IN THIS RESPECT. IF YOU WANT TO FIND OCCUPATIONS WHICH REALLY ARE SIMILAR IN TERMS OF WORK PERFORMED, GO TO THE 'SPECIFIC INFORMATION' ROUTE AND ASK ME FOR 'SIMILAR OCCUPATIONS' LATER IN OUR CONVERSATION.
OKAY, LET'S NOW USE THE RELATED OCCUPATIONS ROUTE TO FIND SOME NEW OCCUPATIONS FOR YOU. PLEASE TYPE THE 7 DIGIT NUMBER FOR THE OCCUPATIONS YOU HAVE IN MIND NOW. 2183110 SYSTEMS ANALYST, BUSINESS.....IS THIS RIGHT/ (Y OR N). Y
GOOD! NOW I WILL GIVE YOU A LIST OF TOPICS THAT YOU CAN USE TO FIND RELATED OCCUPATIONS. USE ANY OF THESE TOPICS, BUT NOT MORE THAN THREE AT A TIME. (TYPE IN ONE, TWO OR THREE NUMBERS, WITH A COMMA BETWEEN THEM, LIKE THIS: 3,10,12). 1. INTERESTS. 2. APTITUDES. 3. TEMPERAMENTS. 4. EDUCATION LEVEL. 5. ENVIRONMENTAL CONDITIONS 6. FUTRUE OUTLOOK. 7. EARNINGS. 8. HOURS OF WORK. 9. PHYSICAL DEMANDS 10. PHYSICAL ACTIVITIES. 1,2,3,4
INTERESTS, APTITUDES, TEMPERAMENTS, BASED ON THAT ANSWER 1 OCCUPATION(S) IS/ARE RELATED TO YOURS. FOR THE PROVINCE/ TERRITORY OF B.C. IN VIEW OF YOUR ANSWERS TO THIS POINT, I THINK YOU SHOULD CONSIDER THE FOLLOWING TYPES OF OCCUPATIONS: 2183-114 SYSTEMS ANALYST, ENGINEERING AND SCIENTIFIC. WOULD YOU LIKE TO FIND OCCUPATIONS RELATED TO YOURS ON OTHER TOPICS? (Y OR N).

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TECHNICAL CAPABILITIES

In its delivery of career decision-making information via a simulated conversation, CHOICES can provide detail for a specific geographical area, as well as assistance on a national basis. The individual is able to direct the flow of conversation in relating self to work to fit a particular set of priorities.

The flexibility exists to repeat, change direction or back-track to a previous question - reanswer it and continue the dialogue from that point.

Because the possibility always exists that a system, terminal, line or power failure may cause an interruption in service, the ability to re-instate a conversation in progress is an important feature of CHOICES, particularly as a typical conversation lasts (according to CEIC) from 25 to 30 minutes. In fact, during the pilot study, the average length of conversation was 54 minutes and from the tests conducted in preparation for this paper, the latter duration appears more realistic.

The information on occupations contained in CHOICES is classified as PRIME or SIMILAR. For each prime occupation, complete data is available, consisting of:

CCDO number
TITLE statement
LEAD statement
DEFINITION
TRAINING REQUIREMENTS
PHYSICAL DEMANDS
ENVIRONMENTAL CONDITIONS
INDOOR/OUTDOOR considerations
DATA factors
PEOPLE factors
THINGS factors

A record of a SIMILAR occupation contains a title and a brief work summary.

Concerning occupations, the system contains a total of twelve files of information, all of which are randomly accessed. These include:

OCCUPATIONS MASTER FILE - containing all occupational records by specified areas.

CHARACTERISTIC FILE - containing ten levels of major and minor characteristrics for 1,114 occupations.

TITLE DEFINITION FILE - containing title and definitions for all prime occupations.

SIMILARS FILE - containing records for all similar occupations.

HISTORY FILE - containing statistical data about ongoing conversations at each terminal.

CCDO - TABLE FILE - containing all occupation reference codes.

BIT - CHAR FILE - containing major and minor characteristics for all occupations.

SCRIPT FILE - this file refers to the full hardcopy narrative text and contains all the output conversation. A shortened version of this same text, TERSE, is obtainable if the command "SHORT" is used. (This capability is particularly useful for counsellors wishing to review a students' conversation with the computer in summary form.)

COUNSELLOR/SUMMARY FILE - again, this provides counsellors and administrators with a short narrative summary of a clients' terminal session and can be activated by keying in a simple command.

In addition to the files, CHOICES provides for detailed report functions, including specialized daily reports to monitor and evaluate system and program usage. The reports include the degree of activity at each terminal, analyses of response time and print-outs of conversations. They may be accessed as a total report for a specific period of time, or each report may be obtained independently.

A note is also in order on the technical possibilities created by the CHOICES network. Once the system is installed, raw data for a number of purposes can be transmitted directly from network sites. This will allow more accurate educational decision-making than is now possible using aggregated data. The heavy paper-flow among schools, districts and Ministry departments could be greatly reduced. The system can also reciprocate in making information directly available to individual schools, via the CHOICES network.

WHERE DID IT COME FROM?

The implementation of the CHOICES system in B.C. (CHOICES B.C.) in a manner consistent with the specific requirements of the province, involves a complex variety of educational, technical, fiscal and administrative considerations - each of which will eventually contribute to the quality of the final product. The nature of the system therefore, is shaped by the history of the project itself.

This section summarizes the major events leading up to the point where the implementation of CHOICES has become a reality. Activities are presented in a summary chart at the end of the section.

Implementation of "CHOICES", continues to be a co-operative effort among a number of agencies, chief of which are the Ministry of Education (M.O.E.), the British Columbia Systems Corporation (B.C.S.C.), the Occupational Training Council (O.T.C.) and the Canadian Employment and Immigration Commission (C.E.I.C.).

The system was developed by the Occupational and Career Advanced Development Group of Canada Manpower in early 1977 to assess the use of interactive computing systems in the process of career exploration. Impetus for the computer resource arose from the need for increasing amounts of information in order to make informed career decisions, along with new technology which made for easier classification of, and access to material. The system was considered for use in British Columbia almost immediately; partly because the need for a career councelling resource was recognized and partly because the findings of the Goard Commission indicated

that career counselling in B.C. schools was inadequate to meet current and anticipated student needs.

A limited examination of the potential of the CHOICES programs and the various options for delivery of the system, included a pilot study begun in October 1977, conducted in schools and manpower centres in both British Columbia and Alberta. B.C. institutions involved in the study were: John Oliver, Sir Winston Churchill, Abbotsford Senior Secondary, Esquimalt Senior Secondary and Vancouver Community College. By February of 1978, the pilot study was complete and the response positive. As a result, CHOICES was considered as part of the 1979/80 Ministry of Education budget, on the basis of educational merit.

With educational soundness and technical feasibility established, the activity became, officially, a project - entitled "CHOICES B.C." to distinguish the B.C. implementation of the system. Following standard project methodology, a Scope Document was prepared and meetings were held with representatives from C.E.I.C. to confirm use of the program for further testing.

The original objectives of the project were:

- to make available to secondary school students (Grades 10-12) and interested students in post-secondary institutions, an interactive career guidance system which provides accurate and up-to-date information for career exploration and for planning appropriate training and education programs;

- to employ a network of terminals for interactive use in educational institutions, supported by identical data bases on regional or central computer systems, preferably within B.C.;

- to make the system available on a shared-cost basis to school districts and post-secondary institutions within current budget considerations and to rationalize telecommunications costs across rural and urban sites;

- to integrate the system into current counselling programs without major re-organization, lengthy retraining or major additions to counselling staff;

- to institute a Pilot Entry System (Phase I of implementation), offering an initial number of terminals in selected locations;

- to effectively establish CHOICES as an important component of a broader program of career counselling in the schools of B.C.

Although some particulars of the objectives have changed (in fact, the project has broadened in scope since its initiation), in principle, they remain the same.

The technical feasibility study conducted by B.C.S.C. for the Ministry of Education in May, 1978, was based on the conversion of the system from the original Burroughs computer to a large-scale Honeywell computer. The results of the study, examined during July of that year, indicated that economic feasibility would take longer to establish, due to the uniqueness of the system.

Meanwhile, a poll of school districts elicited fifty six responses, representative of 70,000 students in Grades X to XII. The large number of clients involved and further analysis of technical alternatives conducted by B.C.S.C., brought about recommendations for ongoing study of system delivery and phased implementation. The phases were described in the following manner.

PHASE I: PILOT ENTRY SYSTEM

A system consisting of thirteen terminals, located in the Lower Mainland and Victoria, to deliver the career exploration capability of CHOICES to selected secondary schools and post-secondary institutions.

PHASE II: LIMITED SYSTEM

A system installed at selected participating sites as an extension of Phase I. This system would service both urban and rural sites outside the Lower Mainland (Regional Centres) and would extend capability to include the Post-Secondary Institutions file, hen available.

PHASE III: PROVINCIAL SYSTEM

A further extension of service provided by Phase II, to include low-density and remote areas, utilizing cost-effective data communications technology.

The advantages of a phased approach, were seen as:

1. more individual preparation and support at each terminal site;

2. a concentration on fewer variables at one time, resulting in smoother installation;

3. the avoidance of large-scale counsellor retraining;

4. improved project planning;

5. each phase providing a managable amount of information for succeeding phases.

Because of the availability of a lower-cost program (S.G.I.S.) in Ontario, a parallel study was conducted - 'Student Guidance in B.C.'. The study compared the relative merits of the two systems, using a number of variables. The final recommendation to implement CHOICES came when lower-cost technology for system delivery was confirmed. The institution of the Pilot Entry System (actually, the second CHOICES pilot in B.C.) and the phased approach, received final approval.

The size and complexity of the CHOICES implementation was the cause of a major planning difficulty: only gross estimates and comparisons could be developed - particularly in longitudinal terms. The phased approach was designed to improve this situation.

Modified program packages from C.E.I.C. were received by B.C.S.C. in December, 1979 for conversion and installation in Victoria. Limited testing of programs took place at Victoria High Secondary School and was completed in January, 1980. At the same time, the "O.T.C. Information Requirements Analysis" report was filed, suggesting that the concept of CHOICES should be expanded to include more provincial data, specifically related to employment levels, and future occupational demand in British Columbia.

A one week training session was held for those counsellors from school districts which were invited to participate in the Pilot Entry Phase and the pilot network was installed and operational in February, 1980. By the time the pilot phase was complete, a recommendation had been brought forward to implement CHOICES on a province wide basis using B.C.S.C.'s large scale I.B.M. 3033 computer and plans were started for 1980/81 installation.

Planning began with the formation of the Implementation Project Review Committee - a modification of the original Project Review Committee which had overseen the project up to implementation stage. The purpose of the committee was, and is, to monitor each phase of installation. In addition to the committee, an Implementation Project Team, consisting of representatives of the Ministry of Education British Columbia Systems Corporation and the Occupational Training Council, is responsible for actual system implementation.

By the end of August, 1980 a detailed master plan had been drafted establishing possible school locations, training requirements, hardware implementation strategies and monitoring proceedures. Present plans call for the set-up of new sites to begin in January, 1981.

Funding approval, confirming the master plan, was received shortly afterwards. The plan included the suggestion that the pilot site network be re-activated for the 80/81 school year and absorbed into the major network as part of Phase II; this being a more cost-effective way to include the pilot schools in the system, than moving and re-installing terminals at a later date.

FIGURE III CHOICES B.C.: ACTIVITY TIMELINE

DATE	ACTION	RESULT
1977 Jan. 1	THE COMPUTERIZED HEURISTIC OCCUPATIONAL INFORMATION AND CAREER EXPLORATION SYSTEM (CHOICES) made available.	First considered for use in B.C.
Jan. 2	GOARD COMMISSION findings made available.	Career Counselling in B.C. schools found to be inadequate to meet student needs.
Oct.	First CHOICES pilot study begun in schools and manpower centre in Alberta and B.C.	B.C. institutions involved in study.
1978 Feb.	First pilot study complete.	Positive response.
	Project Scope Document prepared.	Educational soundness and technical feasibility established.
March	Meetings and agreements with C.E.I.C.	Use of programs for further B.C. testing confirmed.
May	Study of CHOICES conducted by B.C.S.C. for the Ministry of Education	Study based on implementation of "CHOICES B.C." using large-scale Honeywell computer (converting programs from original Burroughs computer).
May/June	Poll of school districts conducted.	56 positive responses received - representing 70,000 grade 10-12 students.
July	Feasibility of recommendations examined.	Economic feasibility for entire system indeterminable.

DATE	ACTION	RESULT
Sept.	Analysis of technical alternatives conducted by B.C.S.C.	Recommendation for phased implementation and ongoing study of alternative solutions.
1979 Oct.	Study conducted - "Student Guidance in B.C." to examine lower-cost S.G.I.S. program in Ontario.	CHOICES implementation recommended, based on newly available version and lower-cost technology.
	Gross estimates developed.	Small-scale pilot phase recommended.
Dec.	Program packages received by B.C.S.C.	Conversion and installation of programs in Victoria.
1980 Jan.	Primary program testing carried out.	Initial testing completed at Victoria High Secondary School.
Jan.	"O.T.C. Information Requirements Analysis" - Report filed.	Recommended expanded concept of CHOICES to include more provincial data - employment levels, future occupational demand.
Feb.	One week counsellor training session held.	Counsellors from pilot locations receive training.
March	Pilot network installed.	Pilot locations operational.
June	Pilot Entry Phase completed. Pilot evaluation and technical report filed.	Recommendation to implement CHOICES on a province-wide basis using B.C.S.C.'s large-scale IBM 3033 computer.
Aug.	Report approved.	Plan started for 1980/81 implementation.

DATE	ACTION	RESULT
Aug.	Implementation Project Review Committee established. Implementation Project Team (MOE/BCSC/OTC) established.	Planning proceeds.
Aug.	Detailed Master Plan drafted.	School locations, training requirements, hardware implementation and monitoring procedures established.
Sept.	Funding approval obtained.	Plan confirmed.
Sept.	CHOICES pilot locations reactivated.	Pilot network in place for 80/81 school year.
* 1981 Jan.	Implement Phase II plan.	On-site installation of 1980/81 locations (other than pilot) begins.

* (Planned)

WHAT DID WE LEARN FROM THE PILOT?

PHASE I: PILOT ENTRY

The pilot entry phase of CHOICES - B.C. was conducted by the Occupational Training Council in co-operation with the Ministry of Education and British Columbia Systems Corporation. The objective of the pilot was to effect a small-scale system start-up on a limited network in order to better anticipate problems which might occur once the system is province wide. As described below, a much smaller pilot study had already been conducted at a national level.

The two stated purposes of the pilot were:

1. to confirm the effectiveness of CHOICES as a career counselling technique;

2. to provide sufficient experience of operating the program on B.C.S.C. computers to obtain reasonable guidelines for full-scale implementation.

The lack of realistic bases for predicting how the system would function led to the hope that the Pilot Entry Phase might enable the project team to:

1. identify and resolve operational problems;

2. determine the best computer deployment;

3. decide between an exclusive CHOICES communications

network and a shared system with other government users;

4. develop accurate operating costs and budgets for a full-scale system;

5. identify the most suitable approach for using CHOICES in a school;

6. allow the Ministry and the Occupational Training Council to determine the effectiveness of CHOICES as a counselling tool in assisting students to investigate their personal career possibilities.

Pilot sites were selected in twelve representative schools and colleges across the province. Counsellors from these institutions attended a one week training session and after installation of the program on B.C.S.C. computers, the network became operational by March 1980. (Some variation of start-date occurred.)

The figures show that 181,000 transactions were logged by CHOICES at B.C.S.C. between February 11th and May 30, 1980, with the average school terminal generating 350 transactions per day. In a typical "conversation", each student logged about 65 transactions indicating that 2,700 students utilized the system during the specified time period. Average duration of a student/CHOICES conversation was 54 minutes.

Variation in site use during the four month pilot study was, in the majority of cases, due to one of three factors. First, the inconvenience of downtime (times at which the computer ceased to function). This problem was related to difficulties with the major high-speed 'phone line linking terminals to the computer.
Second, adequate staff time to prepare, supervise and debrief students was not always available. Counsellors were required to monitor the system in order to obtain the information they needed for further counselling. The pilot determined the need for central collection of data and for its management by the system. Third, as already mentioned was the variable start-up date.

PILOT INFORMATION

Responses to the survey which followed the pilot study showed a very positive attitude on the part of those involved in the pilot network. Among the information which emerged was the following:

83% of participating students were satisfied, or very satisfied with CHOICES;

91% of students felt the system was easy to use;

73% of students were satisfied with the suggested list of occupations;

67% of parents were satisfied, or very satisfied with CHOICES:

Principals and superintendents felt that CHOICES is an excellent motivation for students;

Pilot counsellors were strongly and enthusiastically supportive of CHOICES, feeling that it is, without doubt, the best counselling tool to appear recently.

EMERGING GUIDELINES

As expected, the Phase I Pilot Entry provided a wealth of information for decisions to be made regarding subsequent phases. This information included guidelines for school use, for training, time-lines, and installation schedules. Part is summarized below.

TIMETABLE

Beginning with the existing pilot locations, terminals will be installed in districts volunteering to participate until a total of approximately 320 could be in place by the end of 1983. This would result in possible coverage for all 110,000 grade X-XII students or approximately 200,000 in grades VIII-XII.

COUNSELLOR TRAINING

The counsellor training schedule should account for 100 counsellors per year to give a ratio of two trained counsellors per terminal. Ideally, all counsellors would be trained, but at least one in each school will have in-depth knowledge of the technical and theoretical bases of the system.

A five day training package is proposed, aimed at producing formally trained "experts" for each school. Other counsellors will be

able to take advantage of a one-day orientation to the system.

GUIDELINES FOR SCHOOL USE

The pilot study showed that in one week between 25 and 30 students could optimally make use of CHOICES, at the rate of 5 or 6 students per day.

Thirty <u>average</u> students would require each week:

	ACTIVITY	COUNSELLOR TIME PER TERMINAL
1.	1 to 2 hours of preparation, depending on the students' background in career planning <u>and</u> reading level:	120 minutes
2.	15 minutes per student to do a pre-terminal check to determine that the student has understood the material and is familiar with terminal operation:	(30 x 15) = 450 minutes
3.	Some minimal involvement with students to solve problems while the terminal is actually being operated:	120 minutes

4. 30 minutes per student for debriefing to check the print-out and help student awareness of why certain areas were selected. Further research on a career might be suggested at this time. (30 x 30) = 900 minutes

TOTAL COUNSELLOR TIME EACH PER TERMINAL - 1,590 minutes
(26.5 hours)

This total does not include time for trouble-shooting or for preparation of students of lower ability or reading level.

With one class of thirty students per week, approximately 1,200 students could use CHOICES in one year - accessing just one terminal.

Based on a 9 to 4 day (35 hours per week) it would take about one counsellor equivalent per terminal to accomodate CHOICES effectively. However, it is not suggested that one counsellor should specialize in CHOICES and do all the career counselling: the important factor is that the same counsellor should follow through the process with one student.

Special students (those of low ability or below average reading level, combined with no exposure to career planning) may require up to four hours of preparatory work and much more careful monitoring. Much smaller groupings (8

to 10 students) are recommended in this situation. In most cases, follow-up time will be doubled. Total time for 30 special needs students, could be as much as 72 hours, or approximately three times the effort required for an average group.

COUNSELLOR DEPLOYMENT

The counsellor/pupil ratio of one counsellor to 250 pupils (as recommended by the Task Force on Counselling is approached in very few schools and it will therefore be very difficult to assign one full-time counselling position to CHOICES. One alternative is a major reorganization of the counsellor's role; another is the employment of paraprofessionals to assist with record keeping, clerical tasks, time-tabling, setting up a career resource centre and career files.

GENERAL RECOMMENDATIONS

As a result of the pilot study, it was recommended that CHOICES be introduced into British Columbia in a well-controlled, phased approach over the next three to four years. This approach takes account of the need for counsellor training and the rate at which B.C.S.C. can introduce its planned, province-wide data communications network.

Specifically, the Evaluation Committee of the Occupational Training Council recommended - universal use of CHOICES as a career counselling tool in the public schools and post-secondary institutions, subject to:

- supply of an adequate number of suitably trained counsellors (paraprofessional support might be used to assist with clerical tasks and terminal supervision);

- proper facilities for isolating terminal noise, yet leaving the terminal close to the counsellor and resource centre information;

- the allocation of adequate scheduled time for effective implementation of the complete CHOICES program;

- data being updated frequently to provide current information for clients;

- a realistic plan to permit CHOICES to be properly incorporated into each schools' time-table.

SECONDARY SCHOOL RECOMMENDATIONS

CHOICES should be considered a part of a total career education package and should be available only to a secondary school with a career education program, or to a secondary school that is willing to give a commitment to implement one. In addition:

1. the career education program should include the establishment of a career resource centre that would be available to students to do follow-up research after using CHOICES;

2. in order to make effective use of CHOICES, preparation time, terminal time and follow-up activities must all be accounted for;

3. CHOICES should be available to all secondary grades (8-12) in order to provide the opportunity for career awareness which will lead to the exploration of career possibilities;

4. repeated use of a terminal by a student might be necessary to realize the maximum benefits of the program.

POST SECONDARY RECOMMENDATIONS

CHOICES could become a regular tool of the student services departments of colleges and provincial institutes.

Universities, private institutes and private schools should be considered as potential users of CHOICES.

OTHER RECOMMENDATIONS

1. The system could be considered for expansion into other employment counselling programs. A good example is provided by the Ministry of Labour (Apprenticeship Branch). Counselling is also offered as part of the rehabilitation program operated by the Ministry of Human Resources, and by the Penal Branch of the Ministry of the Attorney General.

2. Longitudinal studies of CHOICES could be carried out to ascertain the effectiveness of the program.

3. Monitoring of CHOICES sites is important to ensure that all users obtain maximum benefits from the system and have sufficient support in the form of supplementary resources.

RECOMMENDATIONS FOR IMPLEMENTATION

1. All counsellors should receive training in the use of CHOICES.

2. CHOICES should be considered a part of a career education package and should be available only to schools with career counselling programs, or plans to institute such programs.

3. Part of the total package could be a Career Resource Centre, available for follow-up research after the use of CHOICES.

4. Paraprofessional help would greatly enhance a career education program in a school.

5. CHOICES should be available to all secondary grades (8-12).

CONCLUSIONS

Despite some technical problems and the fact that a major information file (INSTITUTIONS) was not available for the pilot study, all respondents indicated overwhelming support for CHOICES.

The O.T.C. Evaluation Committee warned, however, that CHOICES cannot be used as a stand-alone career counselling program; students must be given the opportunity to do further research on the careers suggested by CHOICES. This research could be done in the Career Resources Centre, suggested earlier.

The pilot study indicated that students with more of a career education background, tended to make better use of CHOICES. If schools develop such programs, the efficiency of the system will increase. Again, the system is an exploratory tool which provides possible avenues of inquiry; it should not be used for directing students. The system emphasizes the importance of taking time to plan a career and this is every bit as important as the information it contains.

In the CHOICES pilot locations there has been renewed interest in career education and career counselling. The popularity of CHOICES is likely to lend new life to guidance and counselling.

WHEN WILL WE SEE THE RESULTS?

The recommendations for installation of CHOICES are based on a phased approach.

1980/81 installation will concentrate on the Lower Mainland, Southern Vancouver Island and regional centres providing access to 37% of all Grade VIII to XII students, or 44% of all Grade X to XI students. Total installation could result in coverage of all 110,000 grade X to XII students, or approximately 200,000 in all grades VIII to XII.

As CHOICES is made available to more clients, the importance of the system's self management and monitoring capability will become more evident. This capability can provide statistics which will assist in the number and design of training programs, determination of shortcomings in the provinces training and retraining facilities, evaluation of career planning and upgrading of career preparation and counselling.

Many of the benefits resulting from CHOICES will not be amenable to statistical analysis; furthermore, they will be long-term - allowing for full installation, familiarity with use and the implementation of more complete career counselling programs. By 1990 however, it should be possible to at least partly evaluate CHOICES on the basis of a number of variables, including:

1. school drop-out rates;

2. completion rates in post-secondary, training and apprenticeship programs;

3. subjective data from early users of CHOICES on satisfaction with their final choice of training and/or employment;

4. surveys of absenteeism and job satisfaction among young employees known to have used the system;

5. changes in employment-selection patterns among different socio-economic and geographical groups.

6. more accurate job forecasts.

Continued evaluation of the system will also mean improvements and additions to meet changing requirements. In short, CHOICES will adapt to its users.

In theory, the operation of CHOICES to serve all high school students in British Columbia is limited only by the speed at which equipment can be installed and the speed at which counsellors can be trained in the use of the system. It is hoped that the counselling department in

one of the Universities, will soon be making use of CHOICES as part of its training program, on an off-campus basis and with the assistance of the new KNOWLEDGE network. Plans are also being discussed for making the system available to interested students in all post-secondary institutions.

Large corporations may also wish to be involved, both as a service to their employees and as a more accurate placement technique. Whether these and other agencies opt for inclusion in the system, or share the facilities on a community basis, will depend very much on the results of the secondary school installation.

The initial plans outlined in this paper, therefore represent only the beginning of the educational, social and economic potential of the CHOICES system.

LOOKING AHEAD

ANTICIPATING THE FUTURE

The CHOICES system may be thought of as a major social intervention which answers a number of serious needs. The project plans and benefits described earlier in this paper, reflect only a small part of the possible consequences of province-wide coverage, and focus primarily on one group - secondary school students. Awareness of the need for career planning and the capability to make satisfactory decisions are crucial to the school leaver, but there are also a number of other stages in an individual's life-cycle when he or she is "at risk" in the occupational decision-making process.

1. when the need for a change of occupation arises because of personal growth and learning or because of a deliberate decision to enter a new life-style, seek new goals or live elsewhere;

2. when lack of early education limits available opportunities;

3. when unemployment forces a re-evaluation of occupational choice;

4. when illness or accident precludes further participation in a chosen occupation;

5. when individuals receive prison terms which remove them from the work-force for a period of time;

6. when persons retire from their primary occupations and wish to re-enter a workforce, either in a new area or in some voluntary capacity.

Future applications of CHOICES could well assist all of these situations and expand the clientele of the system to include virtually every resident of British Columbia. However, full installation of the terminals in schools and post-secondary institutions is a necessary first step, in order to place sites in different parts of the province. Evening use of terminals is now being studied, preliminary to making the system available to individuals, industry and other ministries.

ALTERNATIVE MODES OF ACCESS

Although the decision has been reached to support the CHOICES system on B.C.S.C.'s IBM 3030 computer for at least the next two years, rapidly changing technology demands continuous monitoring and review of means of delivery and ways of giving access to the information contained in the system.

CHOICES in itself is a relatively simple computer system. There are several small batch programs to maintain the data files and there is one large interactive program. The student/user signs on to, and works with, the interactive program. Two major factors to be considered in the implementation of CHOICES in B.C. are the number of simultaneous users of CHOICES and the geography of the province.

Initially, four possible arrangements were considered for delivery of the system:

1. one large, central computer system;

2. several mid-sized regional computers;

3. many small computers located in schools and colleges;

4. a combination of the above.

Factors to be considered in assessing these alternatives included:

1. enough flexibility for growth and change;

2. the cost of teleprocessing lines versus the cost of additional computer equipment;

3. relative capacity of the computer, including number of parts and processing power;

4. systems maintenance and support at each site;

5. degree of control over the system under each arrangement;

6. the desire of C.E.I.C. for CHOICES to be standard across Canada.

Maintaining CHOICES on more than one type of computer was initially felt to be prohibitive; large computers tend to be more efficient in response and performance, but a small computer

could handle CHOICES for one or a few terminals. One central machine gives least difficulty in support. A variety of factors therefore pointed to one large computer as the best for CHOICES, at least in the initial stages. The possibility that new developments in computer or communication technology may alter the economics of the case, is one which will continue to be considered.

One such possibility is that of a complement to the CHOICES network in the form of alternative information delivery via microprocessor/print mode. This suggestion has arisen because of two major difficulties with the larger network.

1. prohibitive communications costs in implementing the system in certain remote areas;

2. lack of telecommunications facilities in some remote (particularly Northern) regions.

It is important that students in such areas have access to the system, because knowledge of occupational opportunities is usually limited, compared with the information available in urban centres.

The microprocessor/print mode consists basically of a stand-alone microcomputer which does not access the major network, but has the major occupational exploration routes (EXPLORE, SPECIFIC, COMPARE, RELATED) stored in disk form. The user is able to work through the first stages of the program using the diskettes, then references the printed material. In this sense, there will be very little difference from using a terminal accessing the major network.

The capacity of a stand-alone microcomputer has not previously been sufficient to contain all CHOICES information, but rapid advances in technology are increasing the feasibility of such a complimentary approach. Printed material would be available as a supplement and information updated as for the major network.

At time of writing, a feasibility study is underway to investigate what is involved in making use of micro-processor technology to bring CHOICES to more clients.

Another mode of access to be considered at a future point, is via video-disc. Video-disc technology may well be a means of supplementing the basic system by, for example - allowing a user to take a "video trip" around the campus of an institution, follow an experienced worker around on the job, experience a day in a selected apprentice-ship program or simulate life on a remote work-site. Each of these "experiences" will enable an individual to enhance his or her decision-making capability by creating meaningful expectations for a chosen educational or occupational route.

Other means of accessing the system will depend on the purpose for which it is being used. Secondary school leavers tend to be more flexible in career choices and the currently available occupations and institutions files will serve them well. But many older people are more limited and will require different kinds of information - jobs

available in a more specific geographical region, for example, (for those who do not wish to uproot their families); occupations which can be undertaken in the home (for the handicapped) and volunteer careers in particular communities (for those who wish to offer service close to home). These and other, information files will be considered as adjuncts to the basic system. The problem then becomes one of making the files available to the people who can benefit and deciding who can and will be responsible for development.

While 1984 should make CHOICES available to every high school student in the province, there are any number of other exciting applications to look forward to, with undeniable benefits.

SETTING SOME GOALS

The history of "CHOICES - B.C." to date has underlined the importance of the phased approach - an approach which packages the possibilities of the system into manageable proportions and implements each according to a carefully monitored plan. The present goal of the installation phase - to make CHOICES available to all grade VIII-XII students in the province - is overridden by a much broader goal - to make CHOICES available to everyone in British Columbia, as the need arises. Neither is this idle speculation; once the over 300 sites are established, CHOICES is technically available to everyone in the community.

To demonstrate what might be possible in the years ahead, four short scenarios are presented below. Each demonstrates a way in which the concept of CHOICES can be expanded to serve every citizen; more importantly, each emphasizes the crucial role of the counsellor.

JIM GETS BACK TO WORK----

Jim S. is a carpenter in his forties who has suffered a serious fall on the job. The accident has left him partially paralyzed but with full use of his arms. Jim is very depressed about his situation. He wants to work and apart from the direct results of his accident, his health is good. However, carpentry is the only thing he knows and he obviously cannot easily re-locate. He is confined to his home and has very little mobility.

Jim finally agrees to career counselling which includes the use of CHOICES. In working through the program, he is surprised to find that CHOICES now has a specific route for handicapped people and that there are a fair number of apportunities available. His morale is also raised, as he lists all the things he can do well. For example, he is good at working with his hands, he has learned over the years to pay attention to detail and he knows a great deal about planning, design and precise measurement.

In looking at specific occupations in his area, Jim finds several which appeal. He finally selects one which seems tailor-made for his situation; the assembly of parts into small transistors for a small local company. The firm agrees to deliver the parts and blue prints to Jim at his home. The work pays well and he can more or less choose when he works and how much he produces.

Discussions between the counsellor, Jim and the company manager hit a snag, however. The transistor assembly is based on colour coding and it turns out that Jim is colour blind. Jim is very upset, to lose a job for a reason which has nothing to do with his accident. The manager is disappointed - he could use come-one with Jim's talents, and although he has lost a potential employee, he now decides to find out if there are other people in a similar situation for this kind of work.

Meanwhile, the counsellor has not allowed Jim to pin all his hopes on one job and has been investigating several other leads. One turns out to be ideal. A local furniture manufacturer needs someone to make detailed designs from basic drawings for building custom furniture. Jim excels at the work which is easy for him to accomplish at home. He is even able to put together simple models for showroom display and to take an increasing responsibility for the business.

MARY FINDS AN INTEREST----

Mary N. is in her seventies and a resident of a senior citizens home. Although she is active and bright, years of arthritis have slowed her down, so that even a short walk is something of an effort. Nevertheless, Mary would like to be involved in something to give her life some variety. In particular, having raised a large family, she would like to work with children.

Mary is somewhat timid and a little afraid of approaching anyone about this; however, she knows about the CHOICES system and has seen it demonstrated. CHOICES is available in the home on a microcomputer, which the residents use for games, educational programs and arts and crafts drawings. Recently a volunteer career file has been added to CHOICES and it is geographically based, listing all volunteer service opportunities in that particular area.
Mary uses the program and comes across three areas which interest her:

1. Volunteers are needed as aides in a local classroom to give one-to-one assistance to children with reading problems.

2. A local service agency would like surrogate "grandparents" to socialize with children who come from broken homes.

3. A government department has as list of handicapped children who would benefit from two hours a week with an adult - to talk and to learn to do simple activities such as work zippers, do up buttons and recognise place names.

Mary decides that she would enjoy any of these jobs and that her patience and experience would come in useful. Her next step is to call the CHOICES counsellor for an appointment. The counsellor comes to see Mary, as arranged and looks at her CHOICES printout. They discuss the situation together and agree that it would be beneficial to pursue any of these options.

A few days later, the counsellor contacts Mary with more information. The first two alternatives, she thinks, might be too physically strenuous. However, the third option looks promising. There is a special fund available to transport a handicapped child to visit Mary at the home once a week.

The arrangements are completed with a phone call, relying on the counsellor's recommendation. Robert, a cereberal palsy victim, is brought to the home every Wednesday afternoon for two hours. Once she understands Robert's needs and they get to know each other, Mary devises small activities for him. In this way, Robert learns to tie a bow, to write his name and to play board games. Before they part each week, they have tea together and Robert can now make sandwiches for them both.

Before they meet again, Mary busies herself with thinking up new things for Robert to do and collecting scrap materials for games and models.

JOHN CAN'T DECIDE----

John L. has just completed a four year general degree at a Canadian University and feels that his major problem is too wide a choice of career opportunities. In fact, there are any number of things he might like to do - how to make a decision? Going through the "occupational" and "institutional" files in CHOICES, John comes up with only two things.

1. he feels that he would like to study some area of management;

2. his ideas are yet too unformed to decide which of the programs offered by the professional schools would suit him best.

In his initial follow-up with the counsellor, John states that he feels he has very little to go on in deciding what to do next year. However, at the end of the session, he is surprised to find that in fact he has started to define his interests, aptitudes and needs, fairly specifically. The list, which he and the counsellor agree on, includes the following.

As long as he can support himself, John is not too worried about money.

He likes to travel.

He feels he needs more experience in the world, other than school, before committing himself to a definite program.

He wants to start developing skills which will be helpful in the future.

He has an aptitude for languages and is particularly interested in upgrading his French.

As part of his commitment to the church he belongs to, John would like to perform some kind of community service.

Taking both the list and his personal knowledge of John into consideration the counsellor suggests that John accesses the Service Oversees file. John quickly finds a service position for which he qualifies in a French-speaking African country and is able to sign-on for one year, with an option for one more.

On completing his assignment, John plans to use the CHOICES institutions file again, with a firmer idea of how he wants his future to look.

CAROL WANTS A CHANGE----

Carol H. has worked for the same company for fifteen years and has a fair measure of responsibility. Her original interest was in sales, where she had contact with the public which she enjoyed. However, a series of promotions over the years has brought her to the point where she is in charge of stock inventories - a job she is good at, but which no longer interests her. Besides, she has a lot invested in company benefits, likes the people she works with and does not want to re-locate.

The company, like many large corporations, has anticipated this problem by installing CHOICES to assist employees in career decisions. In Carol's case, the counsellor recognizes a valuable employee who has been, and is, an asset, yet may not be in a position to give of her best.

The supplementary CHOICES program does two things for Carol. It re-assesses her interests and aspirations at this particular point in her career and gives her an idea of the level of job she should probably aspire to. Secondly, it shows her the different career paths now available in various departments of her company and makes suggestions, based on her personal data.

Carol is interested in some of the possibilities, but does not feel that she has enough information to make a decision. A long talk with the counsellor reveals that Carol is now unsure of herself in a new role. Here, the counsellor is able to help by suggesting a number of internal and external education programs and upgrading courses which would help Carol reach a decision.

Carol decides to stay in her present position and take two of the courses suggested. She agrees to discuss the situation again with the counsellor on a specified date, when she will be in a better position to make a choice.

Although she is back in her old position for a while, Carol has the satisfaction of knowing that she is taking careful steps to see if a change would suit her, without risking any of the advantages of her job.